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1960

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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Price 50 Cents

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EDITORIAL DEPT
313 N FIRST ST
ANN ARBOR MICH A

OPERATORS REPORT BETTER WELLS AFTER PERFORATING, CLEANING WITH ABRASIJET

In almost all oil and gas producing areas, Abrasijet* is opening new frontiers for successful well treatment. This Dowell-developed service uses high velocity streams of fluid and abrasive particles, usually sand, to perforate casing and to clean or enlarge open holes. The abrasive fluid is pumped through small jet openings in the tool shown above. Results have been excellent.

In Andrews County, Texas, for example, Abrasijet was used to complete a development well into the San Andres. Six perforations were jetted at one level through the casing and into the pay. The well was then fractured using a treatment engineered with the aid of the "Frac Guide."* 20,000 gallons gelled crude carried 100,000 pounds of sand. *Production increased from one to 81 bopd—about double the production of nearby wells.*

Dowell does many things with Abrasijet—from cleaning the bore holes of old water input wells, to perforating wells that could not be perforated successfully with explosives.

Also wells can be acidized or fractured with the same well set-up used for Abrasijet. This can save the operator both rig time and overall completion costs in most instances.

For prompt service or detailed information on Abrasijet, *dial Dowell.* There are 150 offices and stations in the United States, Canada, Venezuela and Argentina. Dowell, Tulsa 1, Oklahoma.

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DIVISION OF THE DOW CHEMICAL COMPANY

Mechanicsburg, Pa. terminal is one of 11 Sinclair distribution points serving markets along the new, large-diameter Laurel Pipe Line.

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No group has waged more vigorous battle against the rising cost of living than the oil industry. Witness that in 1959 the average price of gasoline, exclusive of tax, was less than 6 per cent higher than it was in 1949, while consumer prices generally rose 23 per cent over that period.

A key weapon in battling costs is efficient distribution. *The Sinclair organization continually improves—and is noted for—its ability to move products to market at minimum cost.* One of the most extensive pipeline systems connects six modern refineries with the most populous markets. Tankers and barges make large-volume deliveries. And 1,629 Sinclair bulk distribution stations—which can stock 720 million gallons—provide the flexibility of storage needed to serve economically a market where demand swings sharply with the weather.

Dealers and distributors trading under—the dinosaur symbol of fine oil products—know a dependable, low-cost distribution system sustains them in the market place. *In the battle against costs, Sinclair has powerful ammunition.*

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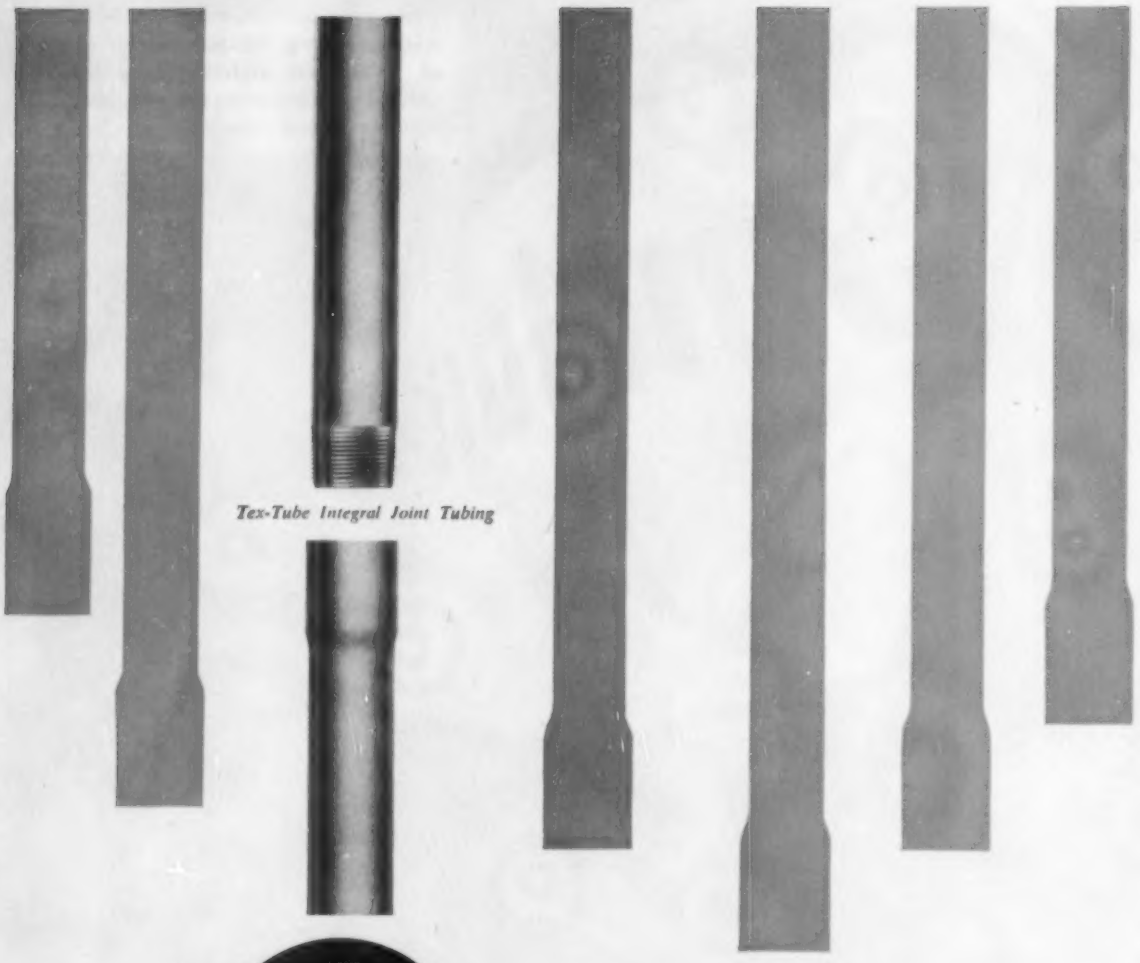

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Tex-Tube's new Series 301 small diameter oil well tubing in 1¼" and 1½" nominal sizes is the only macaroni tubing made entirely in one mill — from coiled stock to finished product — including upsetting, threading and normalizing.

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INSIDE Slant

READ WELL BEFORE WRITING

Early in the year we made some suggestions, not resolutions, for 1960.

However, one important point was overlooked. This was that the articles of the Interstate Oil Compact should be required reading for alleged oil writers on the large daily newspapers in the East, as well as by the majority of oil company executives.

The articles are short, and easy to understand. No one, after once reading the articles, should have any trouble understanding that the Compact is a conservation body, not one formed to prorate oil.

In fact, Article V specifically forbids the limitation of production to stabilize or fix prices.

Yet, some of the uninformed consistently charge that the oil-producing states prorate through the Compact; that the flow is controlled to prevent "economic" waste.

Few states, if any, prorate on the basis of economic waste. Their main objective is to prevent physical waste, either above of below ground.

Few seem to remember that the Compact was established in 1935 as a roadblock against a czar proposed by the late Harold Ickes, who was then Interior Secretary.

LeRoy Menzing
Editor

Congrats and $25 to R. STROHMEYER, J. M. Huber Corp., Berger, Texas

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DEPT/Opinions

Views That

Dear Sir:

Our compliments on your Price Ceiling Map [PW—Jan.29'60,p11].

However, we think the map should be published again with the new prices which are effective in the central part of Oklahoma, and which were effective in early January.

Oklahoma Natural Gas Co. published its new prices for the reserves in two new areas into which it was going, which price was 16.8¢. It also was obligated to raise other areas to the same price or other prices, due to the favored nation clause in contracts in these other areas.

There is still some gas being sold at the prices you show, so that some of your blocks may have to show two prices.

You could obtain the corrections quite easily from Oklahoma Natural and Public Service Co., and I think it would be a great deal of value to the industry to furnish a corrected map.

For your information, when we last visited two large companies we found both of them had a copy of your map on their desk.

M. Lloyd Freese
Vice-president
Bell Oil & Gas Co.

Dear Sir:

Petroleum Week was misinformed when it reported [PW—Feb.12'60,p 40] that Esso Standard is planning a 50% expansion of crude throughput at the Everett (Mass.) refinery, now rated at 50,000 b/d.

We are tentatively considering the replacement of a 21-year-old asphalt pipe still (18,000 b/d) with a new 25,000 b/d unit. However, this project has not been approved, and is simply under study. If a new unit is built, the old one will be retired.

W. J. Sheridan
Manager, Everett refinery
Esso Standard division
Humble Oil & Refining Co.

Dear Sir:

I appreciate very much indeed my subscription to Petroleum Week.

More than anything, I love your constant pounding away at refinery overproduction. It passes all understanding how our oil company top executives can deliberately ruin a guaranteed growing market for their products.

Now, what about the stockholders? I am a major stockholder in a major oil company. What about my personal interest in this matter? The chairman of our board draws a huge salary and he has got himself nicely fixed, at my

Make News

expense, on a retirement plan that is princely, to say the least.

This is true in so many similar cases. But why, if our top oil executives think they are entitled to such rich emoluments, can't they show the intelligence of children and keep production to the market?

Or else, how and why should we owners endow them and their families forever with a certainly unearned reward?

A. O. MALMBERG
Management consultant
Pacific Palisades, Calif.

Dear Sir:

PETROLEUM WEEK reported International Petroleum preliminary earnings for the year 1959 at $23,600,000 and for the fourth quarter at $15,800,000 [PW—Feb.5'60,p10]. Actually, this latter figure is the estimated nine months' earnings. Therefore, the estimated fourth quarter earnings are $7,800,000. The percent change from 1958 fourth quarter is still the 100% shown in your table.

C. J. MILLAR
Comptroller
International Petroleum Co.

Dear Sir:

We offer our belated commendation for your excellent suggestion about the desirability of having the purchasing companies tell not only their nominations for the forthcoming month, but recite at the same time how their purchases compared with their nominations of the previous month [PW—Jan.8'60,p3].

We think the [Texas Railroad] Commission is doing an excellent job in requiring of late that purchasers tell what would be their needs—how much they would need to buy or sell —on the days they nominate. If they could only pinpoint at the same time how these companies are performing in relation to their nominations, an interesting picture would sometimes emerge. In any case, the influence would be a wholesome one for the industry, it seems to me.

W. E. TURNER
Executive vice-president
Texas Independent Producers & Royalty Owners Assn.

PETROLEUM WEEK will publish reader comments each week. Address letters to LeRoy Menzing, Editor, PETROLEUM WEEK, 330 W. 42nd St., New York 36, N. Y.

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SAYS ARNOLD J. LEWIS, MAINTENANCE FOREMAN, FARM BUREAU OIL COMPANY, INC., MT. VERNON, INDIANA

"Our trucks can be found anywhere within a 250-mile radius of Mt. Vernon transporting men and equipment needed for every phase of the oil business. We usually put our 28 Ford Trucks on the toughest jobs because we can depend on them to keep going even if they have to winch themselves out.

"The performance of our Fords is truly outstanding, when you consider that many of our jobs take us along river banks and through plowed fields with mud axle-deep.

"The engines are used just as much for winching and driving other equipment during field operations as they are for highway driving. In two years we get up to 140,000 engine miles on our Fords before we trade them in. During that time we change the oil and oil filter every 2,000 miles and seldom add any oil between changes.

FORD F-600 shown above has a special utility bed designed and built in the Farm Bureau Oil Co. shop. It features a power driven pipe-threading attachment, heavy-duty winch, gin poles, headache rack, rolling tailboard, two-way radio plus both arc and gas welding equipment.

FORD TRUCKS

"In this connection I might add that engine and accessory maintenance is much easier on the newer Fords since they have enlarged the engine compartment.

"Excellent parts availability is another reason why we use Ford Trucks on our toughest jobs... and we can always get Ford parts at a reasonable price.

"We haven't bought any '60s yet, but it appears that Ford has many new and improved vehicles to choose from and I am sure that we will be purchasing them as we have in the past."

Big Fords for '60 are built for longer life . . . with Certified Durability!

Whatever your job . . . wherever you do it . . . you'll discover just as Mr. Lewis did, that Ford Trucks are the best investment you can make for your transportation dollar.

Certified results of tests conducted by America's leading independent research organization* confirm the fact that Ford Super Duties have been refined for added durability! For example . . .

Automatic radiator shutters reduced the coolant temperature variation recorded in severe mountain road tests from a 79° range to a 20° range. Engine operation with coolant temperatures in the 167° to 187° range means less expansion and contraction, more efficient combustion and better lubrication . . . all of which contribute to longer engine life.

Dynamometer tests showed *no vapor lock* with Ford's submerged-type electric fuel pump at temperatures up to 200°. Incipient vapor lock with mechanical fuel pump resulted in a power loss of 9% under the same conditions. Shaker table tests plus constant exposure to oil, water and heat proved 1960 wiring harness to be *three times longer lived.*

Test results plus the experience of satisfied users are important, but that is not all. For 1960, the Super Duty line has been broadened to provide even more flexibility in power train options. See your Ford Dealer!

**Name available on request*

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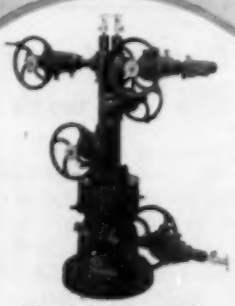
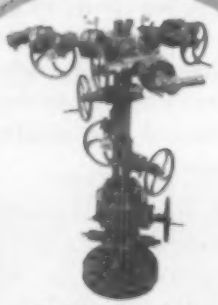
Dual Unitree



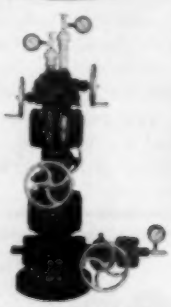
Threaded dual tree with Crescent Flange Bottom



Triple Tri-Flange Tree

Single Unitree

Crescent Flange Tree with Crescent Flow Controls



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60-Second Summary / WHAT'S HAPPENING IN OIL

February 26, 1960

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A 15% to 17% increase in labor costs is forcing Venezuelan oil companies to cut back on their operations. Exploration will be hit hardest. . . . p. 55

•

Texas will consider prorating production for waterflood and pressure maintenance projects. The controversial issue will be discussed at a hearing Apr. 19. . . . p. 15

•

France isn't retreating a step in its campaign to get preferential treatment for Sahara crude in the European Common Market. The government is pressing for acceptance, despite U.S. disapproval. . . . p. 55

•

There's another big gas exploration boom coming for California's Sacramento Valley. Says one independent: "Everyone we know is looking at the valley." . . . p. 25

•

The industry's oversupply of products will continue into the spring. That's the indication from the rate of new supply that is scheduled for March. . . . p. 17

•

The pesticide industry is growing "in spite of itself." This oil-related industry has two strikes against it: low profits and high cost. Yet, because it fills a need, its progress is steady and encouraging. . . . p. 40

•

When its expansion program is completed this spring, Trunkline Gas Co. will become a major wholesaler for the first time. Up to now, it has been primarily a supplier. . . . p. 46

•

Family "togetherness" may be the key to the proposed campaign to stimulate gasoline demand. It should cause wistful memories of Sunday drives and other pleasures of the "good old days," one marketer says. . . . p. 48

•

Five oil companies are pushing a helium play in southwest Saskatchewan. They've taken out permits embracing 1-million acres, and expect to start drilling this summer. . . . p. 32

•

Ultrapure hydrogen can now be obtained through a new process that's said to be foolproof and economical. It's expected to help meet the growing demand for hydrogen. . . . p. 41

•

Excessive product inventories, oil's current plague, are a result of the industry's zeal for efficiency. That's the feeling of one executive, who implies that the situation isn't going to change much. . . . p. 16

Up to the Minute / SIGNIFICANT LATE NEWS

February 26, 1960

High bonus bids for federal lands in the Gulf of Mexico brought a whopping $285,180,648 this week, though the top bids ran well under the previous sale last August. The highest bid was submitted by Gulf Oil and Mobil Oil for the 5,000-acre tract 649 in block 48 in Louisiana's South Marsh Island area. The companies offered $11,112,000, or $2,222 an acre. Last August, the top bid averaged $8,490 an acre.

Of the total bids, $229,448,617 was for acreage off the Louisiana Coast. The second highest bid was by Gulf, Mobil, and Humble Oil & Refining, averaging $2,127 an acre for tract 773 in block 169 in Louisiana's Ship Shoal area. The CATC group bid $2,064 an acre for tract 628 in block 127 in the Vermilion area and Shell bid $2,000 an acre for tract 685 in block 100 in the Eugene Island area. On the federal lands in Texas' Galveston Bay area, $35,732,031 was offered in top bids. The highest offered there was by Shell—an average of $1,026 an acre for tract 115 in block 288.

•

Reductions in refinery runs are spreading to more companies (page 17). Cities Service is cutting runs by 25,700 b/d, or 9% below its January, 1959, average. Standard Oil Co. (Ind.) and affiliates will reduce March runs by 88,000 b/d below the January level, the second cut by the company. And Continental Oil Co. is making another cut, this time, 7,500 b/d. Also this week, Oklahoma cut its March allowable 20% below February's average of 550,000 b/d.

•

Pan American International has found shows of oil and gas in its initial test in Iranian waters of the Persian Gulf. It follows closely the successful wildcat across the gulf in Neutral Zone waters by another Middle East newcomer, the Japanese Arabian Oil Co. The Indiana Standard affiliate's wildcat, being drilled below 11,500 ft. from a mobile platform, has not been tested.

•

The initial price for natural gas in the Four Corners' Aneth field has been cut to 17.7¢ per Mcf. The Federal Power Commission, in a 4-1 vote, held that the 17 producers involved failed to justify their 20¢-per-Mcf. rate as required under the Supreme Court's recent price justification order.

•

The Alberta government is going to "make haste slowly" in the development of the Athabasca tar sands. Premier E. C. Manning says commercial operations should be encouraged, but not at the expense of other oil production. He reports that a committee will be set up this year to "study the impact on the whole economy of the province if we were to move too rapidly."

•

General American Oil Co. of Texas has contracted to buy part of John W. Mecom's Louisiana holdings for more than $27-million. The properties are Mecom's interest in producing properties owned jointly with San Jacinto Petroleum Corp.

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Meet Ethyl's John Rollins

Chief Product Service Engineer in the Southern Region

HERE'S A MAN who takes to refinery mixing plants the way some men take to golf. For John Rollins, the mixing operations of Ethyl customers in his field of responsibility are a constant challenge. Par isn't good enough. He's out for something better—in terms of greater efficiency and maximum safety.

In 23 years as an Ethyl Field Representative and Product Service Engineer, preparing for his present job, John gave par quite a licking. And that explains partly why he now has full technical supervision over all of our product handling service in the Southern Region.

Rollins' responsibility, and that of his entire staff, is to work with oil companies on all aspects of safe, efficient and economical handling of tetraethyllead and leaded gasoline. It covers everything from the design of new mixing plants —to assisting in maintenance of these plants at peak operating efficiency—to helping solve problems connected with storage of gasoline. You name it—the chances are Rollins and his men are in the middle of it.

John's personal experience is put to best use, perhaps, in guiding Ethyl's long-term training programs for mixing plant personnel. Whatever the need—on-the-spot assistance, live demonstrations or the use of films and other training aids—Rollins and his experts are equally ready to train a single replacement or an entire mixing crew.

In short, John Rollins is a specialist; but more than that, he has a keen desire to use his skills for the benefit of Ethyl customers. These pictures don't begin to cover his activities, but they'll show you a good sampling.

Ethyl Product Service Engineers are on the job wherever "Ethyl" antiknock compounds are used; because for Ethyl, service is as important as product.

ETHYL CORPORATION, NEW YORK 17, N.Y. • TULSA • CHICAGO • LOS ANGELES

ETHYL CORPORATION OF CANADA LIMITED, TORONTO • **ETHYL USA (EXPORT)** NEW YORK 17, N.Y.

3. Keeping customer management posted on new developments in his field is another of John's functions. Here—with Ethyl Account Representative Idan Flaa—he discusses the new multi-component blending system with a refinery manager.

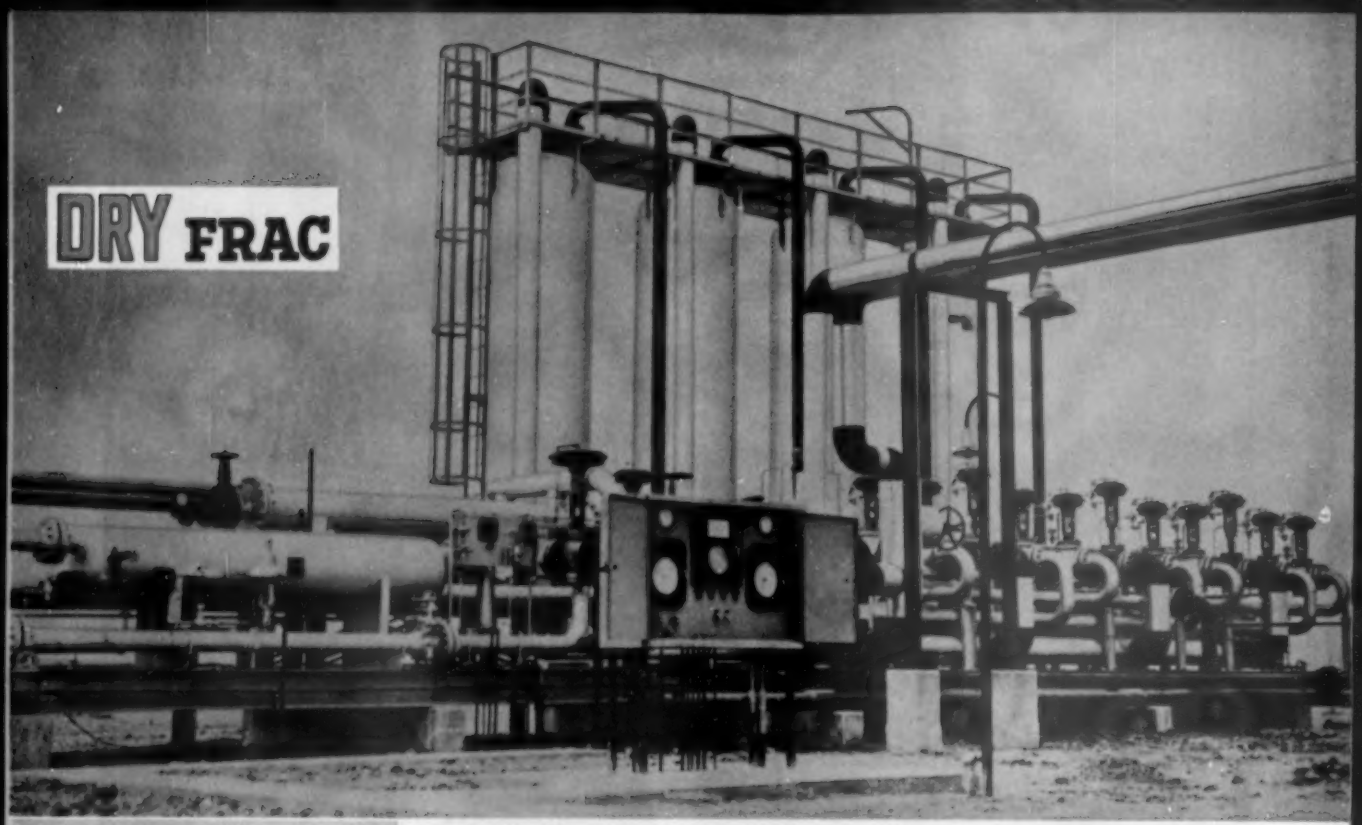
4. Eliminating guesswork is Rollins' forte. With these blending curves, he makes it easy for a customer to determine precisely whether jet blending will work with his existing equipment and, if so, which nozzle will be most efficient.

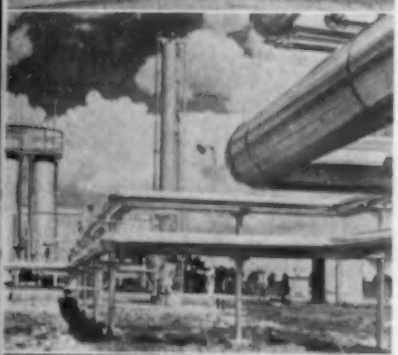
1. Customer companies frequently call in Rollins as a consultant in design and construction of new mixing facilities or modernization of existing ones. Because of his specialized experience and know-how, John can often point out ways to insure maximum value from the proposed project.

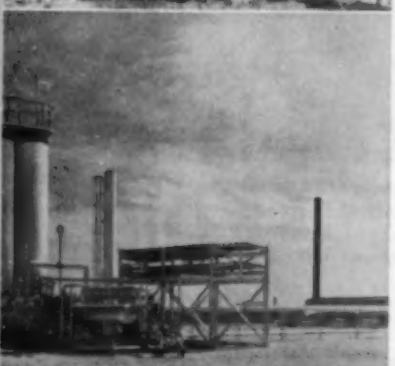
2. Periodic visits to refineries, along with his Product Service Engineers, make up an important part of Rollins' work schedule. They help keep him up-to-date, and let him discuss maintenance and operating efficiency right where the problems are. This often means real money savings to customers.

5. Rollins prepares to show the Ethyl movie: "Danger! Water!" The Industry has found this film so useful as a reminder to management and operations people, and in training programs, that a sequel—"Danger! Air!"—is in production.

6. Visitors hear Rollins explain the principles of the eductor system, using a cutaway model of an eductor. John's personal demonstrations have become an increasingly valuable adjunct to oil company training programs in the Southwest.







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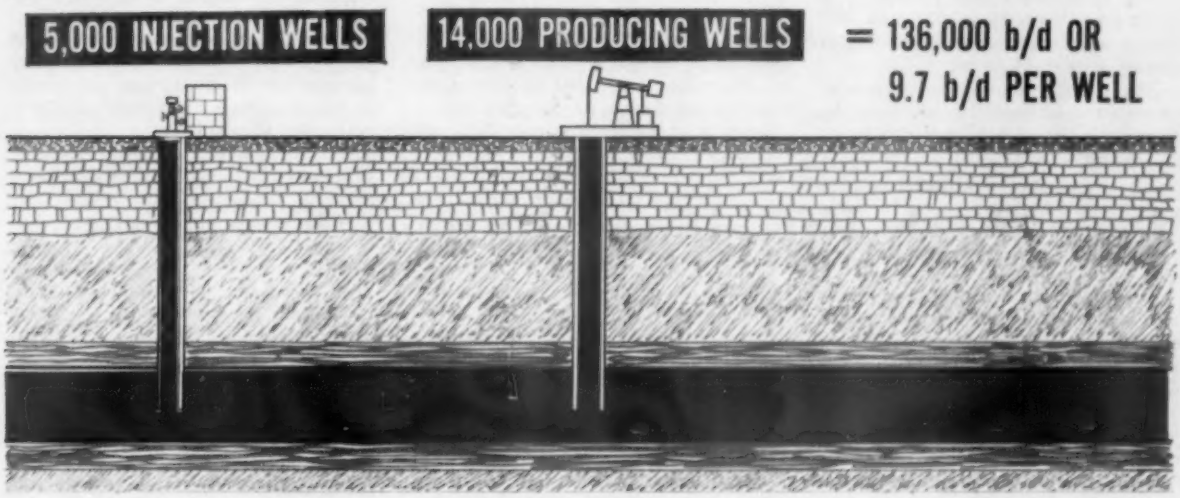
BS&B

Texas has 250 stripper waterflood projects.



Texas May Control Exempt Oil

Texas will become the latest state to consider prorating production from waterflood and pressure maintenance projects—a highly controversial subject among producers.

The Railroad Commission will hold its first hearing on the issue Apr. 19, one day before the monthly statewide proration hearing. There appears little doubt, though, that additional hearings will be required before the commission decides what action to take.

The commission has invited producers to offer suggestions and plans:

(1) For determining whether or not waterfloods and pressure maintenance projects should be placed on a "comparable" basis for distribution of the state's allowable;

(2) For establishing allowable ceilings for future waterfloods and pressure maintenance projects; and

(3) For determining whether or not injection wells should be included in setting the allowable.

Should Texas decide to prorate these now-exempt projects, it would follow the examples set earlier by New Mexico and Oklahoma.

Late last year, New Mexico's Oil Conservation Commission placed all future waterfloods on proration (PW —Nov.20'59,p19). The maximum allowable for new waterfloods is determined by multiplying the number of proration units times the basic area allowable factor times the appropriate proportional (depth) factor for the pool.

Waterfloods have been subjected to proration in Oklahoma twice—once in mid-1954 and once in March, 1958. In the latter instance, the Corporation Commission limited production from waterfloods and other types of primary and secondary oil production to 89% of their January output.

Oklahoma, however, has no statewide permanent proration of waterflood projects.

Texas' decision to study proration of waterfloods and pressure maintenance projects stems from the high percentage of over-all production that is exempt from shutdown days.

The exemptions include crude allowables assigned to discovery wells, marginal wells, and exempt fields.

The exempt allowable in February averages 1,153,310 b/d, or 38% of the total calendar day allowable. Actual exempt production runs about 800,000 b/d.

Of the total exempt, discovery allowables account for about 10%, marginal wells for approximately 30%, and exempt fields the remaining 60%. The latter include waterfloods and other secondary recovery operations.

There are more than 900 pressure maintenance and waterflood projects in the state, though some of the pressure maintenance operations are subject to proration.

Prorating waterflood production—the primary aim of the study in Texas—would have little effect on the state's allowable.

Total production from the 250 waterfloods (chart, above) now averages an estimated 136,000 b/d from 14,000 producing wells, or only 9.7 b/d per well. It amounts to just under 5% of the state's crude production.

The gain in the past two years has not been appreciable. Late in 1957 there were approximately 7,000 waterflood wells, producing 121,500 b/d, or slightly more than 17 b/d per well. In other words, total wells have doubled in two years and total production has increased only 14,500 b/d, or 12%.

Any regulation that may be passed to prorate these exempt projects would not apply to existing waterflood and pressure maintenance operations.

Most producers argue that proration of waterfloods would defeat the purpose of these secondary recovery operations, which is optimum recovery of oil left in the ground after the primary producing stage.

Reservoir engineering studies of existing waterfloods over a long period show, they claim, that:

- The higher the rate of injec-

tion up to underground formation breakdown pressure, the greater the ultimate recovery.

• If injection rates are reduced, or stopped, as might be necessary under proration, oil will be irrevocably lost.

• Greater ultimate recovery will result from capacity pumping of producing wells where cost of pumping is not an important factor.

The primary arguments in favor of prorating waterfloods are based on the large share of the market that is being taken by unrestricted production. Too, a minority of producers argue that waterfloods have been shut down, and when injection was resumed production equaled the output before the shutdown.

A majority of the Texas Railroad Commissioners have indicated that they would prefer a "reasonable" limitation on waterflood production.

The commission has permitted capacity allowables in stripper waterfloods since 1950. Some members say such a practice is justified because of the additional oil recovered from reservoirs previously considered near the abandonment stage.

It is understood that an allowable somewhere between the "marginal well" permissive and the depth-acreage proration formula (1947 yardstick) is now favored.

One member of the commission has said publicly that a reasonable compromise could be arrived at which would provide a "generous" but not unlimited allowable.

Too Much Efficiency Causes Excesses

Oil's greatest assets—competence and competition—are also the causes of its biggest problem—excessive product inventories, according to a Gulf Oil Corp. official.

That's the ironic word picture that William L. Naylor, senior vice-president of Gulf Oil Corp., drew for the Washington Society of Security Analysts last week.

Competence and competition, he noted, reflect the industry's persistent drive for better cost control, technology advancement, and more effective and dynamic management.

Key factors in the oversupply problem include the method of allocating import quotas, incremental refinery runs, operation of marginal plants, and the pressures of excess crude production.

The increasing ratio of fixed refinery expenses to variable refinery expenses as a result of technological development is one consideration that encourages maximum throughput, Naylor told the group.

The philosophy that ties import allocations to refinery runs is another factor that spurs refiners to seek maximum throughput, he said, adding: "Pressures of excess crude production, operation of marginal, small, and obsolete refineries which are only profitable at maximum operating rates, and the utilization of reserve capacity which was built intentionally for use in case of a national emergency—all contribute to excessive crude runs and, consequently, to excessive product inventories.

"As prices decline, decreased throughputs are discouraged, as lower refinery runs mean higher unit costs—Or, conversely, the last barrels are produced at the lowest unit cost. Therefore considerable time elapses between periods of product surpluses and periods of product shortages."

Another factor is that no one oil company is large enough to stem the flow of supply by itself.

Naylor observed that no single oil company was "large enough to act as the holder of the umbrella—that is, to reduce runs sufficiently to bring product supplies in balance with demand."

Further, he went on, "no group of companies intends to hold the umbrella for the rest of the industry."

The industry's tendency to overbuild and overrefine tends to depress prices.

As with any growing industry, the Gulf executive said, petroleum has always overbuilt, and incremental capacity continues to be constructed in advance of growth.

"As a consequence," he said, "incremental production and distress sales set the basis for prices at the wholesale level.

"This requires that the entire industry must operate with this price depressant, both on the price of products to the consumer and the price of crude to the producer."

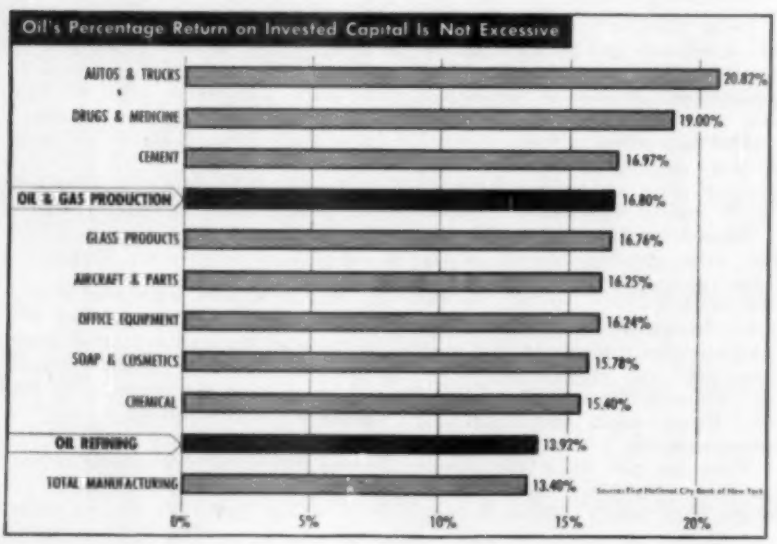
Charges by some congressmen that percentage depletion is a "tax loophole" enabling oil companies to make excessive profits were assailed as "entirely false implications" by the Gulf executive.

Naylor produced a chart (left) to support his statement that "the per cent return on invested capital in our industry is on a par with other industries."

"Therefore," he said, "neither low tax contributions nor excessive earnings justify the attack on the depletion provision."

Despite the problems, the future looks good for the petroleum industry.

"No one should be gloomy about the long-range prospects of the petroleum industry," Naylor said. "Earnings last year were at near-record levels, and with only a little judgment on the part of all elements of the industry, earnings cannot help but reflect good growth in the years ahead."



No Correction to Surpluses in Sight

The estimated new supply of petroleum in March will run at about the present rate of almost 10-million b/d, which means that inventory surpluses will continue to plague the industry.

That's the prospect that faces the industry as it moves from the normal peak winter demand into the seasonal downturn that occurs in the spring.

But so far, no large reduction in new supply—domestic production plus imports—appears in sight.

Demand in the first two months of the year is averaging about 500,000 b/d below earlier expectations, due primarily to the milder than normal winter weather.

Much colder than normal weather in March could change the pattern of the month's demand—which normally averages as much as 700,000 b/d below February demand. But economists agree that the "lost" demand of the first two months can't be made up in the spring months because of the generally prevailing trend of steadily rising temperatures.

The March crude allowable in Texas will be down 120,498 b/d from mid-February, but the cut will be partially offset by new production.

The Texas Railroad Commission decided to continue February's ten-day producing schedule into March; the cutback in the calendar-day allowable results from the two additional days in the coming 31-day month.

The initial allowable will average 2,900,568 b/d, with an additional 28,600 b/d of new production to be added during the month.

In New Mexico, the Oil Conservation Commission reduced the state's over-all allowable by 8,801 b/d from February to an initial average of 364,982 b/d, exclusive of allowances for new completions in March.

The unit permissibles will be trimmed by 1 b/d to 36 b/d in the southeastern fields and by 3 b/d to 60 b/d in the northwestern fields.

Actual production is expected to average 298,583 b/d next month, only 1,463 b/d below the present rate.

Earlier, Louisiana's Conservation Commission decided to continue its March and April allowables based on 35% of the March, 1953, depth bracket, unchanged from February.

The initial March crude allowable—which does not include lease condensate—was estimated at 980,000 b/d. Current production of crude and condensate in Louisiana averages 1,080,000 b/d.

Seven major buyers asked the Texas Railroad Commission to make a deeper cut in the March permissible because of what one purchaser termed the oversupply that "is getting worse all the time."

That comment came from John Harris, of Phillips Petroleum Co. He recommended that the commission hold the March producing pattern to nine days, which would have resulted in a cut of more than 295,000 b/d in the allowable.

Atlantic, Sinclair, Cities Service, Shell, and Gulf joined in the request for a nine-day pattern, and Indiana Oil Purchasing recommended eight days.

Phillips' Harris observed: "Our own position is worse than a month ago when we recommended eight days."

E. L. Wilson, of Dallas, who spoke for "more than 30 other independent producers," urged the commission to make whatever cut is necessary "to straighten out the oversupply."

Indications are that refinery runs may be trimmed noticeably by early March, which would shift some of the oversupply emphasis from the present excessive product inventories to crude stocks.

Phillips cut its February runs by 7,000 b/d from January, and said another 10,000 b/d cutback would be made in March. DX Sunray Oil Co. announced a reduction of 5,000 b/d at its two Oklahoma refineries in addition to a 7,500 b/d cut made in January.

This week, several other companies reported they were studying their refinery requirements in view of the lower-than-expected demand. Some predicted that their March runs would be below the February average.

Normally, runs taper off in March, and even more in April, at the so-called "turnaround" time.

In past years, production schedules were geared to a cutback in refinery runs in the early spring, when the usual turnarounds were scheduled. In more recent years, however, periodic refinery turnarounds are becoming generally obsolete, due to improved processes, greater reliability of equipment, and treating techniques that have led to increased running times before repairs and cleaning out are necessary.

The present situation of surplus stocks, and declining prices for heating oils, calls for sharp reductions in refinery runs and in the rate of supply, most economists say.

And such cutbacks, they add, would have to last for the remainder of the first half, until the surplus inventories can be consumed.

Distillate prices, which declined last week to their lowest level for a February in eight years, showed further signs of weakness this week.

Esso Standard division of Humble Oil & Refining Co. trimmed its postings by 0.6¢ to 0.8¢ a gal. on the East Coast and in the Southeast for both kerosine and No. 2 heating oil.

Postings for No. 4 and No. 5 fuel were cut 20¢ and 10¢ a bbl., respectively, and some diesel fuel was reduced by as much as 21¢ a bbl.

Oil From the Sky? Maybe, Doctor Says

A theory that petroleum originated in the skies, rather than in the bowels of the earth, was advanced this week by a Missouri plant scientist.

Dr. Frits W. Went, of the Missouri Botanical Garden, St. Louis, outlined his thoughts in an article in the February issue of The Proceedings of the National Academy of Sciences.

He suggested that the blue haze over vegetated areas consists of volatile hydrocarbons and similar substances given off by the plants.

These, he says, are washed to the earth by rain, and are deposited in the silts and clays of lake bottoms and rivers, eventually turning into petroleum.

In support of his contention, Dr. Went says an analysis of air that has blown across one square kilometer of sagebrush shows it produces five tons of volatile organic material annually.

The scientist estimates that the grand total of organic matter coming from vegetated areas each year is roughly 175-million tons. This, he feels, is ample to account for the world's crude reserves.

Dr. Went also notes that formation periods for oil (and coal) are correlated with periods when the earth was densely covered with vegetation—and, presumably, a heavy blue haze in the skies.

Lease Sale 'Disappoints' Louisiana

Louisiana's mineral lease sale last week brought in not quite $5.3-million in bonuses—a "real disappointment" to state officials, who had hoped it would produce substantially more.

No bids at all were offered on 35 tracts. Many others drew only one bid. In all, 107,000 acres were put up by the Louisiana Mineral Board, including 20,470 acres offshore.

But less than one-third of the acreage offered drew acceptable bids. When the board finished its work, only 37,006 acres were accounted for. The total acceptable bids averaged only $142 per acre.

Just one year ago, the state collected a record-smashing $59-million in lease sales. Even last September's offering—the most recent previous sale—was much better, producing $12-million.

Few bids were rejected at last week's sale. The grand total amounted to $5,564,637, but acceptances pared this sum to $5.3-million.

The board accepted bids totaling $4,382,157 on inland acres, $850,000 on offshore acres, and $35,686 for a state agency.

Successful offshore bidders included O. C. Collins, Jr., who offered $450,000 for 3,759 acres in the West Cameron area, and $400,000 for another 4,861 acres in the same area.

The highest bid was for 660 acres in Plaquemines Parish by Tidewater, Gulf, Humble, and Abercrombie. They bid $665,000.

Other high bids included:

- Plaquemines Parish: Texaco bid $150,784 for 2,480 acres; Texaco, $185,714 for 2,479 acres; California Co., $478,187 for 4,994 acres;
- Cameron: O. C. Collins, Jr., $188,250 for 753 acres; O. C. Collins, Jr., $196,500 for 786 acres;
- Iberia: Sunray-Midcontinent, $162,000 for 1,541 acres;
- Assumption: Union Oil Co. of California, $163,337 for 1,285 acres;
- Terrebone: California Co., $146,064 for 1,390 acres.

The offerings were made at the insistence of Gov. Earl Long, and over the protests of the chairman of the Louisiana Mineral Board.

Gov. Long had urged the board to invite the bids, in an effort to obtain funds to help Louisiana State University carry on a stalled construction program.

But Chairman William G. Helis, Jr., cautioned against a state lease sale at this time. He said a federal lease sale scheduled for this week, would conflict on the point of timeliness and might cool interest in the state lands.

BRILLIANT WHITE curbings are only one possibility of Esso's new . . .

Tinted Plastics For Road Safety

Esso Research & Engineering Co. is obtaining "promising" results from a new compound which it hopes will make multicolored highways practical for the first time.

Possible uses for the surfacing material, in addition to eye-appeal, include:

- Interlocking highway arteries and clover leafs made in colors that would clearly define correct routes and control speeds.
- White curbings to define road boundaries.
- Colored airport runways to show proper landing areas.
- Tinted driveways, tennis courts, swimming pools, and sidewalks to make home areas look more beautiful.

Esso's new technique involves compounding plastic materials with aggregate—such as rock or sand—to form a one-inch upper layer for road surfaces.

The colorless plastics can be pigmented any color, Esso says. A spokesman noted that past efforts to color asphalt failed because "asphalt is not only black, it's a strong dye."

The company says the compound can be mixed and laid with conventional equipment, without any changes in machinery or procedures.

Venezuela Says Tax Law Boosted Income

Venezuela estimates that its 1958 tax decree gave it an additional $140-million in oil revenues in 1959 over what it would have received under its old 1948 law. But total revenues still declined.

The approximate figures, announced by the Ministry of Mines & Hydrocarbons, show that government oil revenues last year were about $780-million, as compared with the $640-million the government estimates it would have received under the 1948 tax law. (To get these figures, the Ministry converted from bolivars at the rate of 3.33 to the dollar, instead of the oil exchange rate of 3.09.)

Government oil income in 1958 totaled $918-million.

The new tax law, the Oil Ministry explained, was not the reason that total oil revenues declined:

"The reduction was due to two factors: First, the decline in prices of crude and products; and second, the provision of funds by operating companies to cover increases in wages, salaries, and social benefits, which were expected as a result of the recently terminated collective contract negotiations."

Oil Broadens Electronics Base

About 120 oil companies now have high-speed data-handling and computing equipment, a Petroleum Week survey shows.

More than 40 of the companies are operating medium- or large-scale electronic computers. These totals count large affiliates as separate companies, and include oil pipeline companies.

The survey, completed this month, covers the data processing machine manufacturers that have a major portion of the installations in the oil industry: Bendix Computer Division of Bendix Aviation Corp., Burroughs Corp., International Business Machines Corp., Remington Rand Division of Sperry Rand Corp., and Royal Precision.

The manufacturers surveyed report a steady increase in the number of independent oil firms becoming active in data processing.

So far, most oil companies have tended to devote their principal electronic effort to basic applications that help recover initial expenditures. This trend is shown in the table (below), which underscores the attention being given to computers to relieve the costly drudgery of manual bookkeeping.

Since the table covers only the most common machine uses, it excludes many important applications being run by only a few companies.

"In the next two to five years," says one computer specialist, "we will see computers used as tools of management to an extent most have only dreamed about."

How The Oil Industry Is Using Electronic Computers

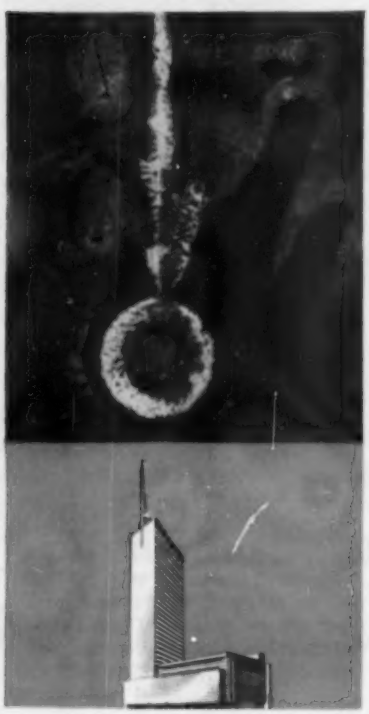
These tables show the number of oil companies using each of the varied applications of computers—not the number of computers. Data are arranged in order of most computer applications (excluding punched-cards column). Data cover only principal uses.

	Type of Computer—Large	Medium	Small	Punched Cards
Exploration, Production (Covers applications of 76 companies)				
Reservoir calculations	7	12	10	2
Crude production accounting	2	21	—	39
Interpretation of seismic data	4	11	5	2
Interpretation of magnetic, gravity data	6	13	—	3
Oil, gas royalty payments	2	17	—	48
Correlations of well data	4	9	—	3
Payroll	1	12	—	34
Lifting cost statements (lease operating costs)	1	10	—	35
Mechanical design	—	9	1	—
Reduction of laboratory data	—	—	8	—
Water flood studies	—	—	7	—
Partnership billing (joint venture accounting)	—	6	—	28
Property records	—	5	—	22
Well history records	1	4	—	17
Production history records	1	3	—	24
Undeveloped lease records	—	4	—	24
Storehouse stock, material	1	2	—	12
Refining (Covers applications of 57 companies)				
Gasoline blending	11	19	5	—
Distillation calculations	10	20	1	—
Process correlations	9	19	2	—
Refinery running plan (plant simulation)	10	16	4	—
Mass spectrometer	3	20	3	2
Linear programming for refinery simulation	10	14	1	—
Mechanical engineering design, plant maintenance	6	8	8	—
Crude evaluation	7	14	—	—
Payroll	3	13	—	28
Pilot plant calculation	4	11	—	—
Cost accounting	3	4	—	22
Refinery billing	2	5	—	20
Manpower scheduling	2	4	—	4
Package product order control, billing	—	6	—	11
Job order costs	2	3	—	18
Storehouse stock, material	1	1	1	2
Maintenance, inspection control	—	2	—	2

	Type of Computer—Large	Medium	Small	Punched Cards
Transportation (Covers applications of 32 companies)				
Pipeline design	—	8	3	—
Pipeline scheduling	1	6	2	—
Pipeline billing	—	3	—	5
Pipeline inventory	—	3	—	8
Automation feasibility study	—	—	2	—
Compressor efficiency	—	—	2	—
Harbor scheduling	—	2	—	—
Supply, maintenance equipment accounting	—	2	—	9
Land, rights to land records	—	1	—	6
Tank car accounting	—	—	—	5
Marketing (Covers applications of 86 companies)				
Distribution problems	6	7	—	2
Sales statistics	2	5	2	70
Sales forecasting	1	6	—	4
Stock accounting	2	3	2	43
Price checking	1	4	1	—
Marketing expense	—	3	—	36
Wholesale accounts receivable	1	2	—	45
Loaned, leased equipment records	2	—	—	17
Payroll	—	2	—	3
Retail accounts receivable	—	1	—	54
Barrel or container inventory	—	—	—	2
Degree days	—	—	—	12
Home Office (Covers applications of 95 companies)				
Payroll	3	10	—	46
Employee stock or retirement plan	3	9	—	19
Operating statistics, cost accounting	2	5	—	53
General accounting, financial control	2	4	—	72
Budgetary control	2	2	—	22
Dividend accounting	—	3	—	10
Capital stock transfer	1	1	—	4
Accounts payable	—	—	—	5
Library indexing (information retrieval)	—	—	—	4

APPLICATION

Application of modern methods to today's requirements in oil production helps assure maximum returns on invested capital by aiding the proper development and utilization of underground reserves. Republic Bank's Oil Department — largest in the South — applies both petroleum know-how and financial experience to help you plan your financial requirements . . . and to meet them with maximum benefit to you. It Pays to finance with Republic!



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What's New / IN THE INDUSTRY

The Federal Power Commission has allowed a group of Texas producers to drop the interstate sale of gas to United Gas Pipe Line Co., reversing the decision of its examiner. FPC disagreed with Francis D. Hall, the examiner, who contended that the main purpose for abandonment was higher price. United's lack of need for the gas was "clearly established," the commission said. The contract between P. R. Rutherford of Houston et al and United expired in 1956. Service was ended in 1957, and the gas was sold within Texas to Industrial Gas Supply, Houston. United paid 4.7¢ per Mcf. for gas; Industrial pays 8.5¢.

•

Oil pipeline construction hit a postwar low in 1959. According to estimates by the Committee for Oil Pipe Lines, 2,029 mi. of principal petroleum pipelines were completed and 79 mi. of crude lines were converted to products last year. Estimated cost of new construction was about $88.9-million. By comparison, 1958 completions totaled 4,127 mi. of new lines and 398 mi. of conversions, costing an estimated $215.6-million.

•

Tennessee Gas Transmission Co.'s Bay Petroleum division is entering the petrochemical field. The company's initial step will be the construction of a 2,000 b/d aromatics plant at its Chalmette (La.) refinery. The unit will include a catalytic reformer, an extraction unit, and distillation and separation facilities. Construction will begin next summer, with completion scheduled for the spring of 1961.

•

Demand for Alberta crude will average 395,700 b/d in March. Buyers' nominations for light and medium crude were 388,075 b/d, an increase of 15,487 b/d over February. Demand for heavy oil by Alberta refineries will average 7,625 b/d. Exports slated for the U.S. in March will include 53,452 b/d into the Puget Sound area, and 20,500 b/d into the Upper Midwest, approximately equal to February runs in the two areas.

•

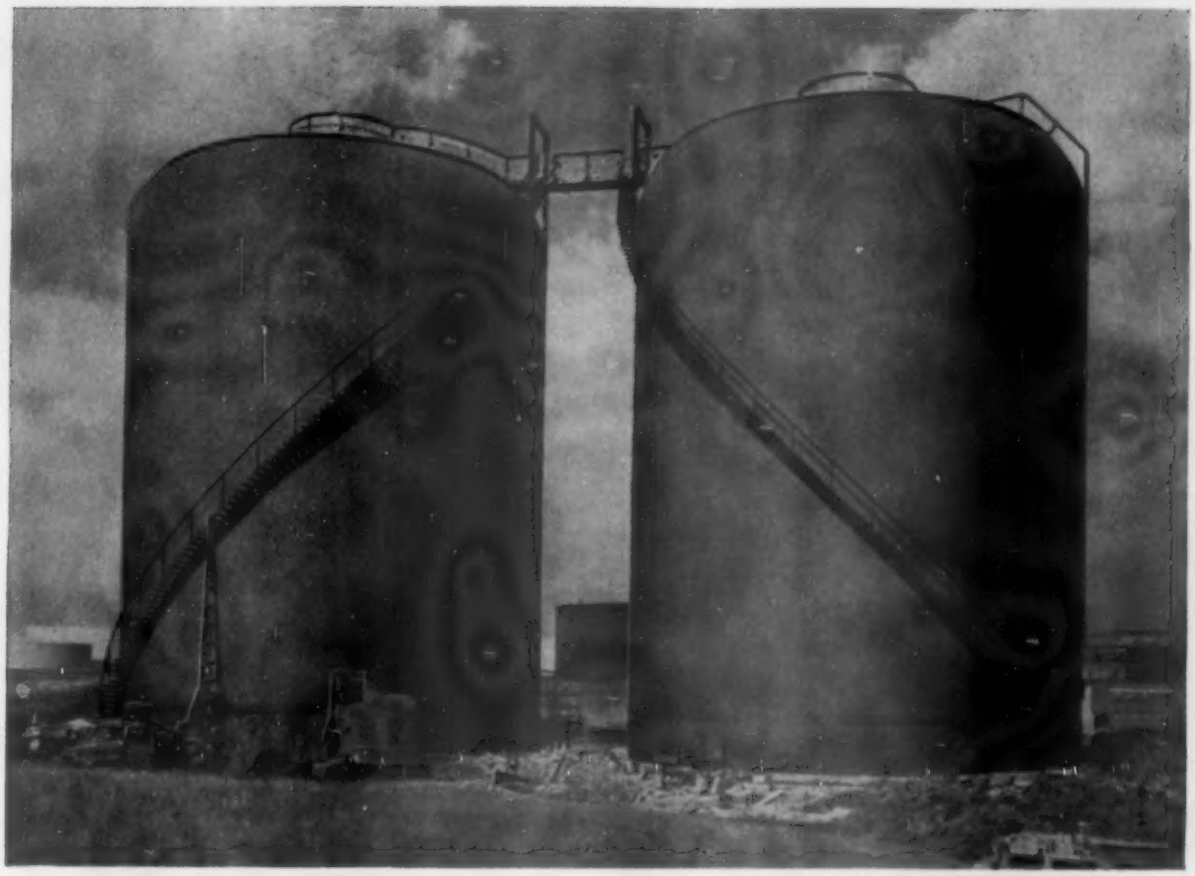
Coffield Pipe Line Co. has cut its posted price for crude from ten shallow fields in Caldwell County, Tex., by 4¢ per bbl., resulting in a new flat price of $2.85 per bbl. The cutback, which became effective Feb. 15, affects some 2,500 b/d to 3,000 b/d.

•

Panhandle Eastern Pipe Line Co. has slapped proposals to split pipeline rate increase cases into "two-phase proceedings." In an effort to save time in handling cases, the Federal Power Commission staff had urged that Panhandle's request for $8.5-million annual rate increase be divided into two hearings. But Panhandle's attorney, Harry S. Littman, charges the plan would waste time, confuse cases, and be unfair to pipelines.

•

Rep. James Roosevelt's invitation to oil companies for a "day in court" has been accepted by another major. Standard of California will "welcome the opportunity to appear before the Roosevelt subcommittee of the House Small Business Committee at any time hearings are called," comments B. W. Pickard, vice-president of Standard Oil Co. of California, Western Operations, Inc. Roosevelt invited majors to answer charges of coercion and unfair pricing in the distribution of TBA items (PW—Jan.29'60,p44), and several accepted immediately.



Two Beauties for Butadiene

"Cool" is the word for these ellipsoids . . . they're built to store butadiene at just-above freezing temperatures, which in Texas means about 45° below ambient temperature. They're 60 feet in diameter and 62 feet high, with storage capacity of 40,000 barrels each.

Butadiene is a problem child when it comes to storage. Vessels must be cold-storage as well as safety-vaults. Operating in an ambient temperature of 80° F the butadiene liquid in these twin ellipsoids had to be refrigerated to 35°F at 10 psig so that it could be kept "indefinitely."

At higher temperatures butadiene will deteriorate. Four inches of glass fiber insulation help maintain the low storage temperature to guarantee the quality of the butadiene.

It takes a heap of know-how and experience to build tanks that meet such stringent requirements. We are proud to have been given the opportunity to build these two ellipsoids for Hess Terminal at Galena Park, Texas.

For any type of process vessel made of metal plate, consult the Pittsburgh-Des Moines Steel Company.

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Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
February 26, 1960

Oil's victory in the Tulsa "conspiracy" case may have one bad aftermath—a demand for new laws against uniform pricing. The loss by the Justice Dept. in that case and an antitrust loss against manufacturers of Salk vaccine may provide the incentive for the Senate Antitrust & Monopoly subcommittee to kick off its move for new legislation.

Laws opposing uniform pricing—even without evidence of an agreement or conspiracy to fix prices—would hit the posted price system. The Justice Dept. antitrusters have long looked for angles to move against the oil industry's historical pricing method. Sen. Estes Kefauver (D., Tenn.) and his antitrust staff now may find justification to give the Justice attorneys a new weapon in the form of an anti-uniform-price law.

For several years, Kefauver has been investigating what he terms "administered" or uniform pricing in several industries. Currently, drug sales are the prime target. Earlier, the subcommittee looked at steel and autos. The same group, under the leadership of Sen. Joseph O'Mahoney (D., Wyo.), investigated the 1957 oil price increase. Kefauver now wants some type of legislation that would crack down on industries with uniform pricing patterns and little "real competition." He includes the oil industry in this group.

Much of the Senate group's hopes are based on antitrust history: Almost all major laws have followed Justice Dept. setbacks. Antitrust authorities cite numerous cases of Congress adopting legislation after the Justice Dept. lost a particular case. One recent example was an amendment to the antitrust laws barring the acquisition of the assets of a firm by a competitor to get around an existing ban on stock acquisitions by companies of certain sizes. Congress refused to change the law until the Justice antitrust lawyers lost a major case on a steel industry merger.

•

The Justice Dept. now will think twice before filing strictly criminal antitrust charges. The Administration antitrusters will move much more slowly in pressing criminal prosecutions of price-fixing where there is no documentary evidence of both a meeting of competitors and an agreement on prices. The government lacked any evidence of this kind in the Tulsa case.

You can expect mostly civil cases, unless there is solid evidence to back criminal prosecution. The antitrust attorneys now hope to reverse a losing record with the criminal and civil indictment in Philadelphia of electrical equipment manufacturers. But any government pricing charges against the oil industry in the future probably will take the form of civil cases, unless Congress alters the antitrust laws.

•

Rising costs and financial troubles may slow the construction of nuclear power plants. Although John A. McCone, chairman of the Atomic Energy Commission, is reporting optimistically to Congress on probable energy competition by nuclear power by 1968, some utility executives question whether heavy expense won't curtail the program. They cite such plants as one under construction for Consolidated Edison in Indian Point, N.Y., which since 1955 has risen in estimated cost from $50-million to more than $120-million. The plant is scheduled for completion in 1961, but may not be ready then.

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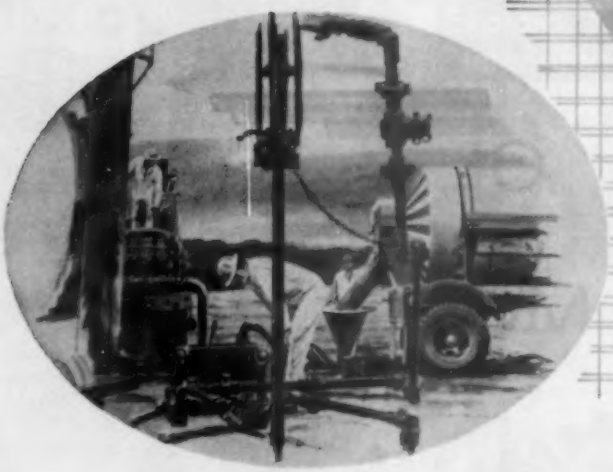

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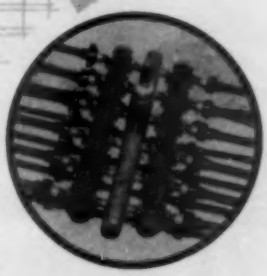

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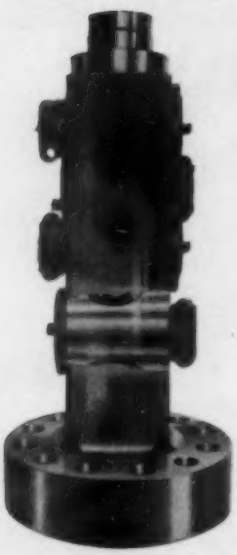

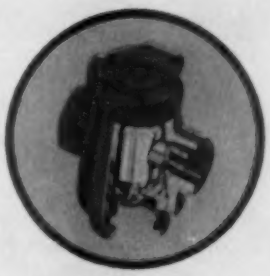

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Sacramento Valley Is Booming Along

All signs point to another record-breaking year for exploration in California's Sacramento Valley, where majors and independents are waiting out the rainy season to launch a bumper crop of wildcats—primarily aimed at gas, but not overlooking oil.

"Every geologist we've got is working on Sacramento Valley gas prospects," says the vice-president in charge of exploration for a Bakersfield-based independent. "Everyone we know is looking at the valley."

A major-company scout in Sacramento predicts that at least 80 tests will be drilled during the first half of this year. If the level of activity holds through the second half, it will set a new record for the valley, which extends from Red Bluff on the north to Vernalis on the south (map).

Last year was the most active exploration year in the history of the valley.

Exploratory footage drilled was up 35% over the preceding year, and discoveries, including new fields, new pools, and extensions, were up 53%.

Independents led the way by roughly a 3-to-1 margin over major companies, completing 18 of the valley's 23 discoveries, drilling 80 of the 110 exploratory holes, and accounting for 416,211 ft. of the total exploratory footage of 561,342 ft.

Reasons for the boom: a strong market for gas; relatively cheap exploration; an encouraging success ratio; and good payouts.

Demand for natural gas far outstrips supply in California, enabling any operator who finds a commercial accumulation of gas in the Sacramento Valley to sell his output. Current field prices in the state range from about 21¢ to about 33¢ per Mcf.

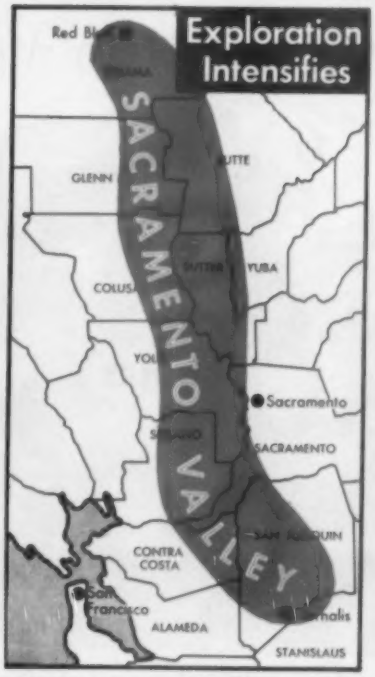
Land bonuses in the valley are generally in the range of $1 to $5 per acre, with a $10-per-acre bonus considered high.

In other parts of the state, a bonus of $10 per acre has come to represent a starting point for prospective oil acreage.

Drilling costs are not excessive, with $3.50 per ft. considered a fair average for holes going to 6,000 or 7,000 ft.

An encouraging success ratio—last year one out of five exploratory ventures hit—is an added inducement.

And payouts can be good. One operator estimates that the average hole, if completed and hooked up in time to start deliveries during California's cold season—roughly from November through March—will pay out in four to six months.



GAS IS THE PRIMARY TARGET in the Sacramento Valley. One recent completion is Occidental Petroleum's 18-million cf/d producer in Arbuckle field (right).

One of the hottest areas this year figures to be a 16-mi.-long strip in Colusa and Sutter Counties, about 35 mi. northwest of Sacramento. A pair of discoveries in early January set the stage.

Western Gulf Oil Co. completed No. 1 F. J. Strain, section 14-13n-1w, as the 8,971-ft. discovery for Buckeye field, 6 mi. southeast of previous production in Arbuckle field.

Cameron Oil Co. followed with completion of No. 1 Cameron-Armstrong, section 7-14n-1e, discovery for Grimes field, 6 mi. northeast of Western Gulf's discovery, and 10 mi. southwest of Marysville Buttes gas field.

Few details were released on either discovery, though both finds are regarded as significant. Western Gulf completed at 8,468-87 ft. in the F zone sand of Upper Cretaceous age. The Cameron well went to total depth of 7,528 ft., and was completed from an undisclosed interval in what is believed to be the same sand.

Completion of these wells makes for some interesting projections of a trend northward to Marysville Buttes, raising the possibility of linkups that might spell one large gas field.

The two discoveries activated interest in Upper Cretaceous possibilities, causing heavy leasing in the area, north from Western Gulf's Strain well to Marysville Buttes field.

Among companies reported active on the leasing front are Standard Oil Co. of California and Texaco Inc. Cameron is "shooting" in the area, and is expected to follow up with additional drilling.

One of the next commitments coming due may put Patrick A. Doheny, Beverly Hills operator, in the field. Doheny holds sizable acreage northwest of the Cameron discovery.

Western Gulf reportedly plans to move to the southeast of the Strain well for an extension. And Honolulu Oil Corp. is regarded as a prime candidate to drill an extension northwest of the Strain well.

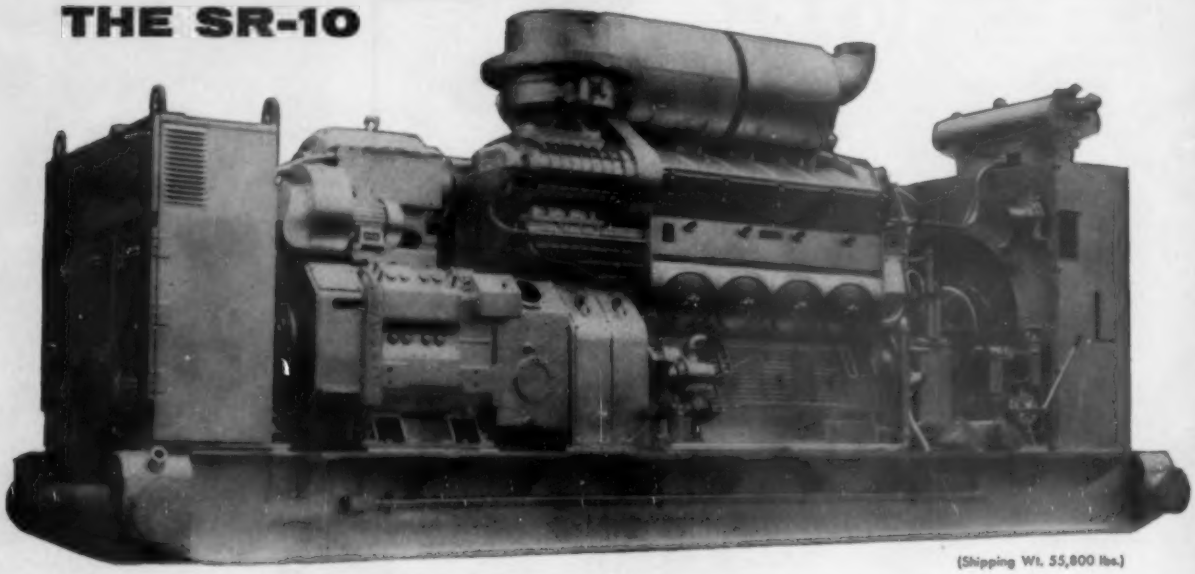
Another hot area is near Red Bluff, Tehama County, where the first good oil shows in the valley have been credited to a wildcat drilled by McCulloch Oil Exploration Co. of California.

The McCulloch well also carried

ELECTRO-MOTIVE

—for deep drilling

THE SR-10



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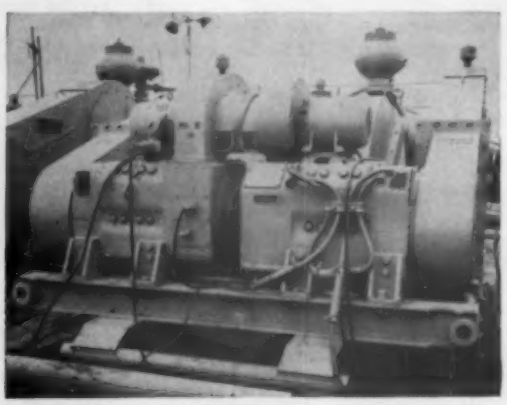
Electro-Motive power has been picked for more deep well applications than any other Diesel-electric system. Its record of dependability, low maintenance and economy, recorded under every conceivable operating condition, have made it the outstanding choice for both land and offshore applications. Most important, it is the *only* deep well Diesel-electric system manufactured and backed by one company.

The SR-10 is the newest Electro-Motive deep well power unit. It is the first standardized, completely self-sufficient power system. An integral AC generator eliminates need of outside AC power for blowers, excitation and control equipment. The 1000 hp 8-cylinder Diesel engine drives two generators that produce 640-KW each. Models are available for Dual-fuel operation.

Sensitive, accurate control

Controls for the SR-10 combine the "feel of steam" with the instantaneous response and accuracy of electric drive. Compact, centralized panel gives the driller supervision of all Diesel-electric equipment including safety shutdown.



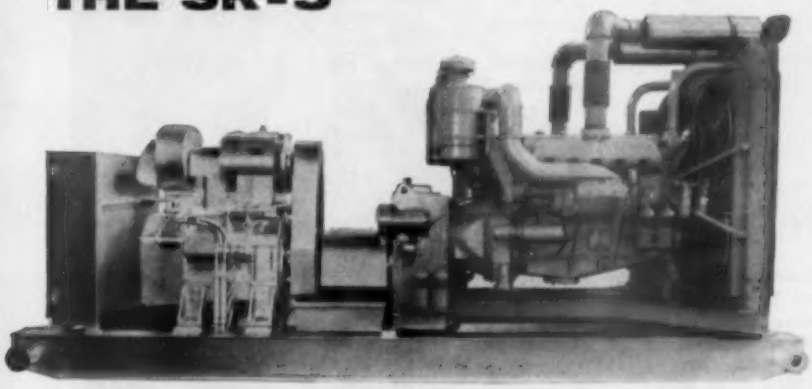
Flexible, positive power

Drive motors for the SR-10 deliver up to 800 hp. The D-49 motor provides smooth and rapid acceleration of loads with positive control of speed and torque. Both drive motors and generators are identical except for field windings, a factor that reduces service costs.

POWER

—*for medium depth drilling*

THE SR-5



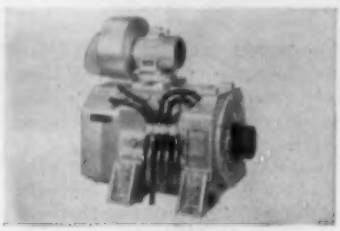
Simple, economical, adaptable

The SR-5 was specifically designed to meet the needs of medium depth drilling. It combines extreme simplicity of design in a compact, portable assembly that saves hours and dollars on rig-up, tear-down and moving operations. Though new in concept, the SR-5 contains the tested dependability, low operating and maintenance features of Electro-Motive SR-10 equipment.

The Basic SR-5 set is a two generator, two drive-motor arrangement. By combining units, drilling power can be tailored to the job for the most economical power arrangement. Skid unit is pictured with a Detroit Diesel engine, though any engine (gas or Diesel) of comparable power may be used.

Driller's Control

Simple control panel of SR-5 requires no special training or electrical knowledge. Sensitivity of controls permit driller to maintain a high drilling rate with complete accuracy and balance.



D-49 drive motor

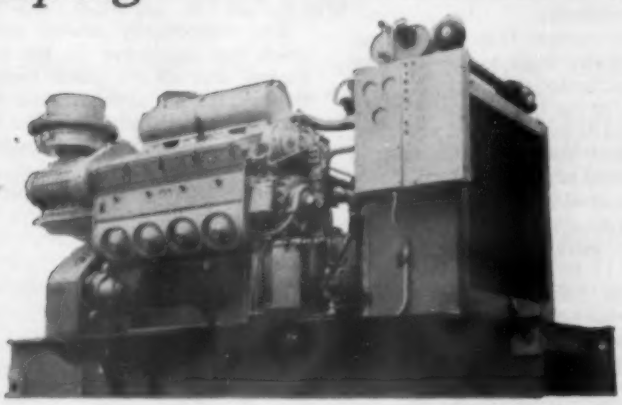
The SR-5 utilizes standard and tested motor components. Electro-Motive drive motors are perhaps the most widely used electric motors for drilling applications. Their dependability and torque characteristics offer speed and power flexibility to meet all drive requirements.

—*for dependable pumping*

THE SK-10

For large capacity pumping operations, the Electro-Motive SK-10 provides a compact and portable skid unit, complete with cooling system and engine controls. The seasoned 567 engine is well suited to the torque and horsepower requirements of pumping applications. The engine is balanced to eliminate any vibration between the set and accessories.

The dependability, low maintenance and economical fuel characteristics of the SK-10's engine have been inherited from General Motors' more than twenty-seven years of Diesel engine manufacture. SK-10 units are available for Dual-fuel operation and heat exchanger cooling.



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strong gas shows. Time alone will tell whether the well has enough kick to make a commercial discovery. But at this point there seems little doubt the shows will lead to extensive revisions in thinking concerning valley prospects.

The McCulloch wildcat is located on the northeast plunge of the Sites anticline, a big structure. The shows are believed to be in sands of Upper Cretaceous age.

The wildcat is located 9 mi. southwest of Red Bluff, making it the northernmost test in the valley. It has touched off quite a lease flurry. Among companies reported taking leases are Humble Division of Humble Oil & Refining Co., Standard of California, Texaco, and Buttes Gas & Oil.

McCulloch presently is testing for production at the wildcat—No. 1 McCulloch-Sunray-Stevenson, section 24-26n-5w—after bottoming at 5,384 ft. operator cemented 5½-in. casing at 3,742 ft.

A projected deep test holds interest in Arbuckle gas field, Colusa County, where Occidental Petroleum Corp. is developing farmout acreage acquired from Western Gulf.

Though final location for the deep test has not been selected, Occidental plans to drill in the heart of the field, which was discovered by Western Gulf in January, 1957. Occidental and Western Gulf entered into a farmout agreement last summer involving approximately 34,000 acres surrounding the field.

The program for the deep test calls for a depth of about 12,000 ft.—deeper than anything drilled in the area before—to look at the Sites sand in the Cretaceous.

It seems certain that the operator will encounter high pressures below the field's producing zones. It plans, therefore, to use heavy mud—perhaps as high as 130 lb. per cu. ft., or higher. The company also plans to cement two big strings of pipe, including 13¾-in. casing to about 1,800 ft., and 9⅝-in. casing to about 6,800 ft.

(By comparison, Ohio Oil Co. used mud of 115 to 118 lb. per cu. ft. to control the deepest hole ever drilled in California—a 21,482-ft. dry hole in Paloma field, Kern County.)

Occidental has completed six wells and is drilling a seventh in Arbuckle gas field since initiating an exploratory and development program last summer. There were 12 wells in the field when Occidental moved in.

The deepest active test in the Sacramento Valley is a tight hole being drilled below 13,100 ft., at last report, in Rio Vista gas field, Solano County.

Standard of California No. 11 Peter Cook, section 18-4n-3e, is projected to 15,000 ft. It is already well below the former depth record for the field—11,051 ft., in a hole drilled by Amerada Petroleum Corp.

Stancal's venture shapes up as the deepest penetration of the Cretaceous zone yet attempted in Northern California. The company is drilling in open hole below 4,940 ft.; 13⅜-in. casing was cemented to that depth.

Drilling is currently under way on one other wildcat, and ten additional tests will be started in the valley as soon as rigs are available and weather permits. In the Manteca area, San Joaquin County, Christiana Oil Corp. and Great Basins Petroleum Co. No. 1 Antonini, section 17-2s-7e, is being drilled below 2,686 ft. toward a goal of about 5,500 ft. in the Cretaceous.

Of the pending tests, four will be in Glenn County; and one each in Colusa, Sacramento, San Joaquin, Solano, Yolo, and Stanislaus Counties.

Operators planning these tests are Western Gulf, E. L. Doheny, Lyle A. Garner, Eddie Fisher, Peacock Oil Co., Brazos Oil & Gas Co., Nordon Corp., Shell Oil Co., Artnell Co., and Kern County Land Co.

Device Prevents Motor Burnouts

General Electric Co. has developed a simple device to provide overload protection against burnouts in its AC oilwell-pump motors.

The device, called a "Thermo-Tector," automatically reacts to the heat inside the motor, and shuts it off before the temperature reaches the danger point and the motor burns out.

The key to the overload protection lies in the two or more miniature, switch-type, heat-sensing devices buried in the stator coils.

Generally, these consist of two metal alloys—one inside the other—with each alloy having a different heat coefficient.

Although small enough to be buried in the stator windings, where the heat is generated, the devices are rugged enough to handle Size 4 contactor-coil current, GE reports.

The hermetically sealed sensors, which are connected to the motor control, shut off the motor whenever the temperature of the internal motor winding exceeds a designated level, regardless of the rate of temperature increase.

Under rapid temperature increase, however, the device "anticipates," and thus acts sooner than it does under a slow rate of increase.

Just two wires are required. There are no amplifying relays or complex circuitry.

In addition to making burnouts from excessive overloads virtually impossible, say GE engineers, there are several other built-in advantages:

- The accuracy of the "Thermo-Tector" is not affected by varying ambient temperatures. There is no nuisance tripping, since the detector is buried inside the coil and is controlled only according to the heat in the coil.

HEAT SENSOR buried in stator coil will shut motor off before it gets too hot.

- It can be closely matched to pump-load requirements because there is little need to use a higher power rating as a margin of safety.
- Unpredictable pumping loads will not burn out the new motors. Fast action is provided to cope with the wide load swings typical of oilfield duty cycles.
- The circuit is failure-safe, since any break in the circuit—wires, switches, or connectors—actuates the control to stop the motor.

The "Thermo-Tector" is available on all of GE's Type KOF oilwell pump motors, 5 to 75 hp., frame sizes 254U to 445U.

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Or if your needs are for something special, you will find Hewitt-Robins technology, staff, and facilities geared to turn out custom engineered hose in short order. For full details consult your Hewitt-Robins representative, or write Hewitt-Robins, Stamford, Connecticut. Ask for Bulletin 2-20.

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There's a Reed man near you, wherever you drill. Let him tell you the full story. You'll be pleased with what you learn.

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GULF COAST, MID-CONTINENT, ROCKY MOUNTAIN AND CANADIAN DISTRIBUTOR FOR MARTIN-DECKER PRODUCTS

Saskatchewan Helium Hunt Develops

The oil-company play for helium in southwest Saskatchewan is reaching major proportions.

The play involves five majors—Sun Oil Co., British American Oil Co., Ltd., Texas Exploration Co., Mobil Oil of Canada, and Richfield Oil Corp. (Canadian Division)—and a syndicate of smaller firms, made up of Dominion Explorers, Ltd., the management company, Spooner Mines & Oils, Sarcee Petroleums, Anglo Western Oil & Gas, Stanwell Oil & Gas, and Trans-Continental Pipelines.

First drilling for helium is expected this summer.

The oil companies already have taken out special helium permits covering more than 1-million acres.

The three-year permits are scattered over an area of about 115 x 132 mi., in the southwest corner of the province.

The permits cover exploration for and development of helium only. The province drew them up following discovery of the gas in a wildcat drilled by British American last summer, 6 mi. north of Swift Current.

Although the company has maintained silence on the helium concentration in its discovery, reports are that it ran better than 2%.

If the helium search proves successful, the operators expect to find ready markets both in the U.S. and overseas.

The gas probably would be shipped to Lake Superior ports in special pressure vessels on flat cars for movement to overseas points by ship.

Demand for helium in Canada is small. But because of the inert quality of the gas, and because it is a good conductor of heat and electricity, helium is in increasing demand for many defense applications, including the production of jet aircraft and missiles, where high-temperature alloys are used. Because it remains a gas when in contact with liquid oxygen, helium also is ideal for use as a lightweight pressurizing medium in some of the larger ballistic missiles.

The high prices commanded by helium—anywhere from $17 to $21 per Mcf.—permit fairly heavy production and transport costs.

At a 2% recovery rate, helium producers would receive a wellhead price for natural gas—from which the helium is extracted—ranging from 34¢ to 42¢ per Mcf.

This compares with the going rate of 13½¢ to 15¢ per Mcf. for natural gas in Western Canada.

Helium is recovered from natural gas in refrigeration plants located in the fields or on gas pipelines.

The helium remains a gas after all other gas components have been liquefied by refrigeration (PW—Dec.18 '59,p42). The helium must then be loaded into metal pressure vessels for transportation.

Most of the world's current supply comes from the Texas and Oklahoma Panhandles, though substantial reserves have also been found elsewhere in the U.S. Southwest.

Concentrations of helium in excess of 1% have been found in Colorado, New Mexico, Arizona, and Utah. The natural gas fields of southwestern Kansas also produce some of the helium currently supplying U.S. markets.

The federal government has a virtual monopoly on helium use. It not only buys the helium, but also owns and operates refrigeration units and storage vessels.

Because most of the helium is found in natural gas that is being produced for the fuel market, the federal government is moving to develop a helium conservation program.

Helium production capacity at five government-operated plants is about 600-million cu. ft. annually.

A U.S. official has estimated that presently known helium-bearing gas fields will be incapable of meeting demand by 1985, if nothing is done to conserve the helium now lost in the natural-gas fuel market.

Activate Welch Unit Next Week

The initial phase of the waterflood project for the West Welch San Andres Unit, Dawson and Gaines Counties, West Texas, goes into effect next week.

For the past several years Cities Service Oil Co., operator of the newly formed unit, has conducted a pilot waterflood on one of its leases near the center of the unit.

Unitization will become effective Mar. 1, and full-scale flooding is scheduled to start soon.

The San Andres, according to Cities Service, "is a reservoir full of oil just waiting for some force to move it out." The company's 4½-year pilot flood showed that waterflooding will provide that force.

It's estimated that the additional oil to be recovered as a result of the flood will total some 45-million bbl.

This figure, says Cities Service, is about 2½ times the amount of oil that could be recovered by primary methods.

The residual oil saturation at the time of abandonment, according to estimates, can be reduced to 44% of the pore space.

"The San Andres formation in the Welch pool," says a Cities Service engineer, "probably could be marginally produced for another 40 or 50 years, but this certainly couldn't be done within the scope of present day economics."

Average present production from each of the 210 wells included in the unit is 12 b/d. Cumulative production up to last November totaled 8,661,000 bbl.

Expansion of the present pilot flood will include the conversion of 12 oil wells to water injection.

Wells are now on 40-acre spacing. Plans are to convert alternate wells, resulting in an 80-acre, 5-spot flood pattern, the same as that used in the pilot flood.

The flood area encompasses 8,280 acres of the approximately 13,000 acres in the field. The unit includes most of the field except for the southeast quarter.

The unitization agreement permits the entry of adjacent leases at a future date should the owners so desire.

The unit is owned 70.58% by Cities Service. Other major interest holders include United Producing Co. and Mobil Oil Co. Some 21 other companies and individuals also own working interests.

Participation in the unit is on an equivalent acre-foot basis.

In setting up the unit, engineers used core analysis in direct comparison with gamma ray neutron logs to estab-

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lish each participant's equitable share of future recovery through waterflooding.

Several strategically located wells were logged under the direction of the unitization engineering committee to obtain data from which an isopach map was drawn.

No credit in the final unitization formula was given for current production or the number of wells on individual leases.

The San Andres reservoir underlying Welch field is a dolomitic rock of Permian age found at an average depth of 4,900 ft.

The productive horizon is about 65 ft. thick. It has an average porosity of 9.25% and an average permeability of 4 millidarcies.

Oil in the reservoir was undersaturated at the original bottomhole pressure of 2,200 psi. The saturation pressure is 325 psi. and the solution gas-oil ratio is 203:1.

No effective water drive is evident, and primary recovery has been a combination of fluid expansion and solution gas drive.

Production in the field, which was discovered by reflection seismograph and a trend play in late 1941, is from a "terrace" type structure defined around the edges by porosity pinchout.

The discovery was Richmond Drilling Co. and Ray Albaugh No. 1 J. J. Hantley, Dawson County, in what is now the southeast corner of the field. It was completed on the pump in November, 1941, for an initial potential of 160 b/d plus 12% water.

The producing horizon dips at the rate of about 100 ft. per mile in a north-south direction, and is essentially flat in an east-west direction.

Most of the field lies in northwest Dawson County, but a portion of it laps across the county line into northeast Gaines County.

A northern segment, 1 mi. from the main field, extends into Terry County.

The 80-acre, five-spot pilot waterflood was started in July, 1955.

Two water supply wells were drilled into the Santa Rosa, a shallow, brackish-water-producing formation found between 1,350 and 1,800 ft. These two wells are each capable of supplying about 5,000 b/d of water.

A production "kick" in response to flooding occurred in the center producing well three months after injection began in the four converted corner wells.

Since production from the pilot area was restricted to the field MER, capacity was limited by controlling the rate of water input.

In the San Juan Basin . . .

Operators Look Eastward

An oil play may be shaping up on the east side of the San Juan Basin in northeastern New Mexico.

Except for a few scattered oil pays, gas has dominated production on the east side of the basin so far.

There is substantial oil production on the west side, the most noticeable of which is from the Bisti field—which also produces gas—on the southwest side of the big Blanco gas area.

A recently completed wildcat that opens a new area and a new pay has drawn new attention to the east side of the basin.

The wildcat, Intex Oil Co. No. 1 USL Alto, section 5-26n-1e, Rio Arriba County, was completed on the pump for 130 b/d of 35-gravity oil through perforations at 1,929-58 ft. in fractured shale of the Niobrara (Cretaceous) formation.

The scheduled objective in the test was the Greenhorn limestone, which has demonstrated short-lived production in a few wells within the basin. But when oil was found in the Niobrara, drilling was stopped and the well was completed. Cable tools were used.

The majority of basin drilling has been in the west and central parts, aimed at the Mesaverde, so far unproductive on the east side.

The discovery is about 10 mi. from production of any kind. No other drilling has been carried out within 2 mi.

Blanco gas field, where production is from formations within the Mesaverde, terminates about 10 mi. west of the Intex discovery. To the east, the Mesaverde outcrop characteristic of the basin, is about 2 mi. from the discovery.

The Mesaverde, which is productive over most of the basin, is found at 500 ft. to 600 ft. in the vicinity of the Intex well.

Such drilling as has been done in the past in the extreme eastern side of the basin has gone only to the Mesaverde.

The development of Bisti field and increased emphasis on pre-Mesaverde formations within the central portion of the basin furnished a new interest in shallow east side formations.

The favorable economical aspects posed by the shallowness of the new basin pay—the Niobrara—play a big part in focusing interest on the area's possibilities.

The Niobrara, although a shale, is considered analogous to the sandstones productive in Bisti field on the west side of the basin. The basin shallows to the east, and the same formations productive at Bisti are found around 1,700 ft. to 2,000 ft. in the area of No. 1 USL Alto.

Intex estimates the payout will be about ten months for a 2,000-ft. well costing about $28,000 to complete.

This, says the company, minimizes the risk inherent in the lack of production history from the fractured shale formation.

As one operator puts it: "Shale or not, 130 b/d of 35-gravity oil from less than 2,000 ft. is not to be ignored."

The Niobrara in this area is about 450 ft. thick. Drilling at No. 1 USL Alto was stopped before penetrating half of the formation.

Intex Oil Co., which made the discovery, is drilling one test south of its east-side opener, and is ready to spud another.

Both of these are scheduled to be drilled to the Greenhorn, which is expected to be found at around 2,700 ft. If oil is found in the Niobrara, casing will be run to allow testing of the deeper formation.

One of the tests is 1½ mi. south of Intex No. 1 USL Alto; the other is ½ mi. farther south.

Observers in the area say that further successes could touch off a new play along the basin's eastern flank.

A substantial north-south area east of Blanco remains to be tested.

All that's needed to start a play, say the observers, is for the Niobrara discovery at No. 1 USL Alto to be confirmed, regardless of whether success is also attained in the Greenhorn.

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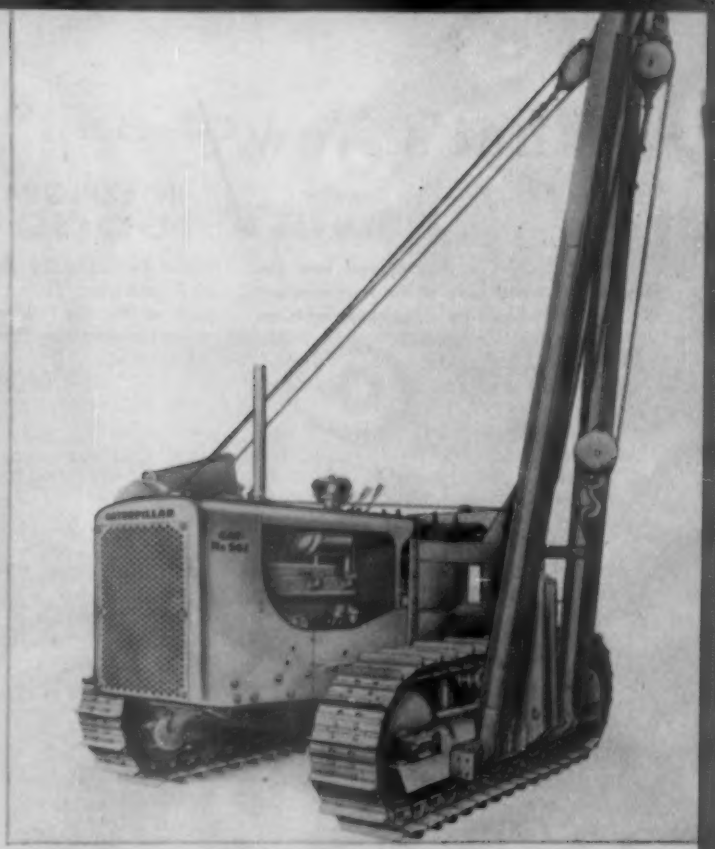

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Here's an all-new medium-sized pipelayer with the features, power and range of lifting capacities to handle a multitude of jobs easier and faster on your spread. Built with all the quality and stamina of the giants of the Cat pipelayer line, it is designed to keep working profitably for you over the roughest ground and most abrasive soils.

Here are some reasons why. Its new Cat Diesel Engine delivers high torque at low speeds, long life under full loads. Its heavy-duty undercarriage features lifetime lubricated track rollers and idlers that never need on-the-job servicing and hydraulic track adjusters that permit track adjustment with the easy stroke of a grease gun. And its oil clutch is built to operate a long, hard season without adjustment.

These and many other features are listed briefly. Look them over. But for the full story, see your Caterpillar Dealer. Get the complete facts about the all-new No. 561 from him. Ask him to demonstrate. See for yourself how you can use it in your spread on a wide range of jobs.

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HEAVY-DUTY PIPELAYERS FOR THE HARD WORK

What's New / IN EXPLORATION, DRILLING, PRODUCTION

Shell Oil Co. has moved into the Lisbon trend play in the northeastern Paradox Basin by acquiring rights on about 88,000 acres in eastern San Juan County, Utah, and western Montrose and San Miguel Counties, Colo.

The company last week paid Penrose & Tatum, Ft. Worth, more than $2-million for the rights, which include federal, state, and fee lands.

The play was kicked off last fall when Pure Oil Co. found Mississippian gas and Devonian oil and gas at No. 1 Northwest Lisbon, San Juan County (PW—Nov.20'59,p28). The wildcat was completed for 586 b/d of oil through perforations at 8,261-93 ft. and 8,310-48 ft. in the McCracken (Devonian).

Nearest Devonian production is 500 mi. southeast, in Lea County, N.M. Nearest Mississippian production is 36 mi. northwest, in Big Flat oil field, Grand County, Utah.

•

Gas purchasers in Kansas must take ratably from wells to which they are connected in any gas field in the state, according to a new rule issued last week by the Kansas Corporation Commission.

The previous ratable take order, which has been under attack in the courts, has been rescinded.

Thus, the commission has closed out investigation stemming from its show-cause order against Northern Natural Gas based on uneven takes from wells in the Hugoton field.

The new rule provides that:

"In each common source of supply under proration by this commission, each purchaser shall take gas in proportion to the allowables from all wells to which it is connected, and shall maintain all such wells in substantially the same proportionate status as to overproduction or underproduction.

"Provided, however, that this rule shall not apply when a difference in proportionate status results from the inability of a well to produce proportionately with other wells connected to the purchaser."

•

The Board for Lease of University Lands in Texas is planning a lease sale in June or July.

The board has requested that operators select tracts they would like submitted for bids. Notices should be sent to B. R. Haigh, P. O. Drawer 553, Midland, Tex.

•

General Crude Oil Co. is seeking approval for a unit waterflood program which, it estimates, will yield an additional 41,148,000 bbl. of oil from the Claytonville Unit, Claytonville field, Fisher County, West Texas.

The company told the Texas Railroad Commission that continued operation under present primary methods would result in recovery of 25,332,000 bbl. of oil, or 18.7% of the original oil in place.

Pressure maintenance with water injection, the company estimates, will result in ultimate recovery of 66,480,000 bbl., or 48% of the original oil in place.

The company estimated that $650,000 would be spent for facilities to carry out the pressure maintenance by waterflood. The field, opened in January, 1952, produces from the Canyon lime at an average depth of 5,700 ft. There are 3,213 proved productive acres developed in the field, on which there are 47 producers.

•

The first workover rig designed specifically for offshore platforms has gone into operation in the Gulf of Mexico.

The rig was built by Spencer-Harris Machine & Tool Co., Gladewater, Tex., and delivered to Barnwell Offshore Inc., Shreveport, for work under contract with Sinclair Oil & Gas Co.

The rig is equipped with a 98-ft. mast and a 9-ft. substructure. It is capable of working over wells up to 16,000 ft. in depth.

•

Bonuses totaling $31,013 were offered at the recent sale of Uintah and Ouray Indian lands in Uintah County, Utah.

Belco Petroleum Corp. made the highest per acre bid at the sale, offering $31.60 per acre for a 28-acre tract. Total offering was 1,628 acres.

•

A total of 48,476 acres of tribal and allotted lands will be offered for lease by the Blackfeet Tribal agency March 6.

Most of the acreage is on the east slope of the Rockies, in the Disturbed Belt.

•

Twelve wildcats are either being drilled or planned in a little-explored area of north-central Alberta about 100 mi. south of the Northwest Territories border.

Pan American Petroleum Corp. is drilling two wildcats and may drill as many as eight on its Dizzy Creek acreage west and northwest of the Caribou Mountain area.

South of the Caribou Mountain area, Union Oil Co. of California is drilling one wildcat. Home Oil Co. is drilling one, and has staked location for another.

In addition, an independent combine with Dynamic Petroleum Prod-

Scouts to Count Active Rigs

The International Oil Scouts Assn. will soon start a weekly tabulation of active drilling rigs in most of the U.S. and Canada.

Maxwell R. Proctor, chairman of IOSA and chief scout for Atlantic Refining Co., says the rig count will include both rotary and cable-tool operations. General industry distribution is planned.

Proctor adds that two-thirds of the association's local chapters have already agreed to participate in the project. First distribution is expected within three months for the Mid-Continent area, where most chapters are located.

Current plans call for a county-by-county report on all states covered.

Proctor says the report will consider a rig active if it is idle for a drillstem test or some other temporary purpose, or if it is in the process of being moved from one location to another.

"Our men like to use Edward Mudwonder Valves...

...what more could you ask for?"

Ray Bounds, Tool Pusher for the Bay Drilling Corp., Thibodeaux, La., has an excellent reason for using Edward Mudwonder valves on the Drilling Barge Rome. Here's what Ray says:

"We've just drilled seven holes in ten months. And we're ready to start on number eight as soon as we get on location. If you know Southeast Louisiana, you know that these are deep wells—13,000 footers—and working pressures sometimes hit 2800 pounds. To keep up a schedule like this means we have to have high-class equipment and good crew morale. *Having good equipment is the biggest morale booster we have.*

"Our Mudwonder mud valves are the kind of equipment the men like to use. Mudwonders are easy to open and close even at high pressure with heavy mud and seventy pounds per barrel of lost circulation material. If our Mudwonders need to be inspected or serviced, the men can tend to it quickly without removing the valves from the line. What more could you ask for?"

The confidence Ray Bounds has in Edward Mudwonder valves is found wherever you go in the drilling fields. Mudwonder valves are built in 2", 3" and 4" sizes, with screwed or flanged ends, for 2000 psi WP (4000 psi test) and 3000 psi WP (6000 psi test) service and in 2" size for 5000 psi WP (10,000 psi test) service. See your favorite oil field supply store, or write Edward Valves, Inc., 1236 W. 145th Street, East Chicago, Indiana. Subsidiary of Rockwell Manufacturing Company.

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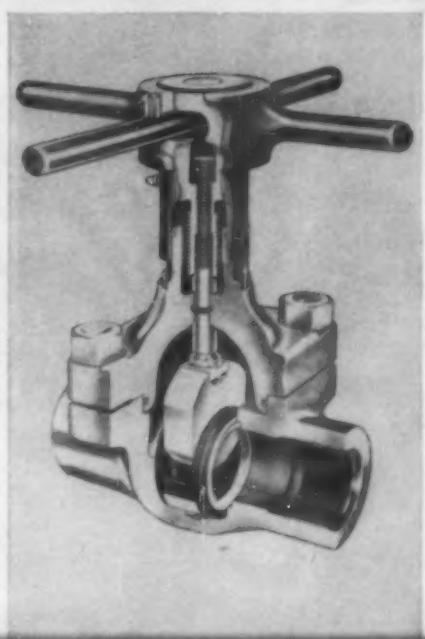
another fine product by
ROCKWELL

▲ Ray Bounds, Tool Pusher for the Bay Drilling Corp., finds that his men like Edward Mudwonder valves because they are easy to operate and easy to maintain.



◀ Mudwonder cut-away view shows the one-piece seat insert with Buna-N molded integrally over steel wear rings; chromed gate with "T" slot connection; separated stainless stem and double thread construction.

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Contact your Axelson man about new slim hole developments. Typical is Axelson's Thru-Hard coupling for slim hole production. It's used in place of a hardened and ground coupling. The Thru-Hard coupling has a built-in toughness without sacrifice of strength. Try it and see.

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Longer Pump Runs Result From Barrel Tube And Plunger Manufacturing Developments

Equipment life and production runs can be increased through better barrel tubes and plungers in proper combination. Axelson field representatives are trained to prevent customers from paying for a premium tube or plunger when it may be unnecessary, because, in many cases, a more economical combination may be available. In addition, Axelson has spent thousands of dollars improving manufacturing techniques to produce the most complete selection of barrel tubes and plungers available. Here are the facts:

Barrel Tubes—Axelson's hardened tube has the heaviest case known for maximum wear resistance. It is combined with a strong, resilient, tough outside diameter. Only the I.D. is case-hardened. Threaded ends are unhardened to retain their inherent toughness.

A uniform case depth and hardness is maintained, eliminating soft spots. Axelson helped steel companies develop non-destructive ferro testing to avoid split tubes. Quality is upheld through concentricity, straightness, finish and closely maintained tolerances.

Unhardened tubes are produced for mildly corrosive wells, etc. Exceptionally hard chrome I.D. tubes are available for salt water type corrosion conditions, particularly where abrasion is a problem.

Plungers—The best runs are accomplished by a proper combination of tube and plunger. A careful choice of both is necessary. Axite, chromium plated, hardened steel, regular steel, niaxite, and composite (eutectic, regular iron, hard cast iron) plungers are produced by Axelson to give production men as wide a selection of equipment as possible.

For example, Axelson's Axite plunger surfaces are highly resistant to abrasion, impervious to salt water, extremely resistant to hydrogen sulphide, and non-galling (lowest coefficient of friction of any type plunger available). Axite particles have a hardness of 9 on the Mohs Scale. They are best for extremely corrosive conditions.

Field Tested—A highly abrasive and corrosive California well in the Bakersfield oil field had consistently chewed up ordinary plungers (such as one shown at right) in a matter of several weeks. Axite plungers were finally installed. The Axite plunger shown at left ran 25% longer than the best previous plunger.

© 1960—U. S. Industries, Inc., Los Angeles, Calif.

ucts, Ltd., as operator is drilling a wildcat on the Caribou Mountain Plateau.

The region was the scene of a heavy lease play last year.

•

Engineering

Alco Products, Inc., has introduced a new through-conduit gate valve that seals positively with line pressure.

The "Flo Seal" valve uses pressure in the line to maintain a metal-to-metal seal between the floating seats and the gate so that, as long as pressure is maintained, the valve stays tight.

The seats are self-aligning, says Alco, and automatically compensate for distortion caused by temperature changes, pressure changes and wear.

When high ambient temperatures cause body pressures to exceed line pressures, the upstream valve seat is forced open, and excessive pressures are bled back into the line.

•

A small-diameter, expendable jet perforator for through-tubing and slim-hole completions is being offered by McCullough Tool Co., Los Angeles.

The Mac-Jet perforator is said to have an enclosed firing system; deep, carrot-free penetration; excellent break-up characteristics; and a high well-flow index.

•

Drilling Highlights

Wyoming—Gulf Oil Corp. No. 5 State Line Unit, section 18-12n-94w, Sweetwater County, was completed for 450 b/d of oil and 200,000 cf/d of gas through perforations at 3,934-45 ft. in the Fort Union. The two other wells in the State Line area produce gas.

Also in Sweetwater County, Continental Oil Co. No. 5-2 Sand Butte, section 5-17n-99w, flowed 10,624,000 cf/d of gas on open flow test of the lower Almond at 5,125 ft. The prospect is located about 6 mi. southwest of the gas production at Table Rock field.

Michigan—Sunray Mid-Continent Oil Co. No. 1 Bollaert, section 33-6n-13e, St. Clair County, flowed 41-gravity oil at the rate of 200 b/d through 24/64-in. choke on 1-hour test of the Niagaran Reef at 3,800-25 ft. The discovery, 15 mi. northwest of Boyd field, is Sunray's first production in Michigan, and is only the second production in the county.

West Texas—Sinclair Oil & Gas Co. No. 7 Ora Cobb, section 16, block A-46, psl survey, Andrews County, was dually completed as a Devonian discovery and Ellenburger zone confirmation in Andrews field, which produces from shallow Permian and from pre-Permian formations. The well flowed at the rate of 792 b/d of 45-gravity oil through 12/64-in. choke and perforations at 10,424-84 ft. in the Devonian, and flowed 379 bbl. of 45-gravity oil in 18 hours through 18/64-in. choke and perforations at 12,374-90 ft. in the Ellenburger.

Nebraska—Wyoming Western Oil Co., McDaniel Drilling Co., and S. D. Johnson No. 1 Hoffman, section 19-14n-57w, Kimball County, yielded 50 to 60 bbl. of oil per hour on the swab from the J sand (Cretaceous) at 7,007 ft. The discovery is 1 mi. southwest of Hoffman field, but separated by failures.

In Banner County, Edward M. Davis No. 1 Patton, section 17-18n-57w, was completed for 187 b/d through perforations at 6,755-59 ft. in the J sand. The discovery is 1¼ mi. northwest of Vogt field.

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Pesticides Thrive Despite Handicaps

An industry closely related to the petroleum industry—from which it receives much of its raw materials—is in a process of development "in spite of itself." It is the pesticide industry.

Some of the difficulties that confront this "nonglamorous section" of the chemical industry were reviewed this week at a symposium on pesticides during the annual meeting of the American Institute of Chemical Engineers, in Atlanta.

"While much is said about missile fuels, new synthetic fibers, and wonder drugs, very little is generally known about the products that have allowed America's population to be the best fed people in the world," said J. V. Vernon, executive vice-president of Food Machinery & Chemicals Corp.

In 1959, 600-million lb. of various pesticide products valued at $280-million were sold—a 10% increase over 1958. A similar increase is expected for this year. And it is estimated that by 1975, the industry will do a $1-billion business.

A high percentage of the raw materials used to make pesticides, and the carrier fluids as well, come from petroleum sources.

The U.S. Department of Agriculture estimates that about 30-million gal. of petroleum products—mostly xylenes and heavy aromatic naphthas—were used as solvents for pesticides in 1959.

Kerosine and distillates are also used as solvents and carriers. And fluorohydrocarbons constitute a high percentage of the aerosol-type insecticides that are gaining in popularity.

But that's only one part of the story. There are 236 basic toxicants produced today, by perhaps a dozen manufacturers. These basic, or "technical," toxicants are used to prepare over 7,000 formulas available to the consumer.

Most of the basic toxicants, including the old workhorse, DDT, are either chlorinated or phosphated hydrocarbons.

Variable economic conditions, and especially geographic location, enter into the decision of a chemical formulator when he selects his sources of supply. Thus, the hydrocarbon for his pesticide—for example benzene—may be of petroleum or of coal origin.

The true extent to which refiners contribute to the pesticide industry, directly and indirectly, cannot be determined with precision. But it is substantial.

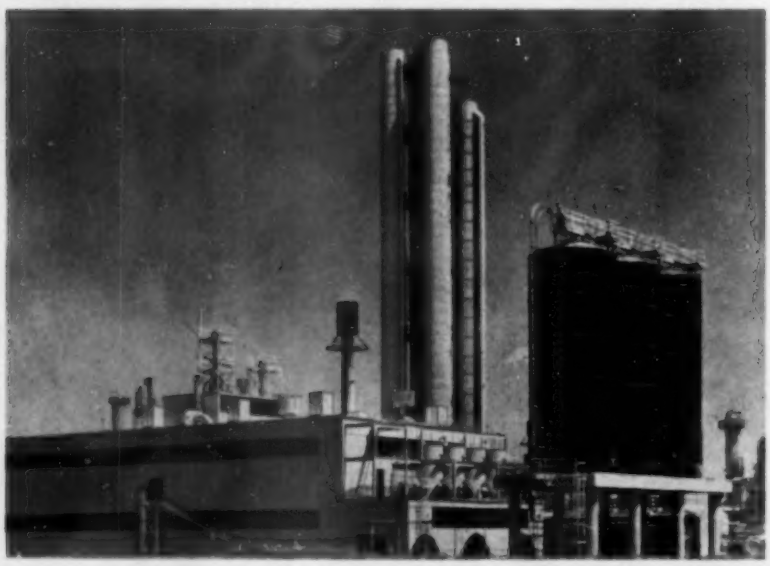
Today, the pesticide industry has two strikes against it: Its profits are small, and its costs and worries are great.

"Contrary to what many who are not familiar with the problems of the industry think," said S. H. McAllister, manager of the Agricultural Chemicals Division of Shell Chemical Co., "markups in general are not high, considering the risks involved and the long-term problem of dealing with a fluctuating market." On such pesticides as the wettable powders used for malaria control, the approximate profit is 0.4¢ a lb. on DDT selling for 25¢ per lb., and 2¢ on "Dieldrin" that sells for $1.20.

R. H. Wellman, manager of the Agricultural Chemicals Division of Union Carbide Chemicals Co., and FMC's Vernon pointed out several of the industry's drawbacks:

- The development of a new pesticide is slow; the period varies from 5 to 15 years. Consequently, a product may become obsolescent by the time it is ready to go to the consumer, or shortly thereafter.
- It costs about $1¼-million to develop a new chemical into an acceptable pesticide.
- Compliance with the law brings costly responsibilities. Under the Federal Insecticide Act, the efficiency of the new pesticide must be proved. Under the Miller amendment to the Federal Food & Drug Act, the residues resulting from the use of the new pesticide must be proved harmless. Also, the toxicity of the pesticide to people and animals must be determined.
- Many pests are capable of developing resistance to pesticides.
- Technical help must be given to the farmer to permit him to use his pesticide properly. This is costly.

Depite all handicaps, the development and distribution of pesticides is so essential to the world today that the industry will spend over $30-million in research again this year. As

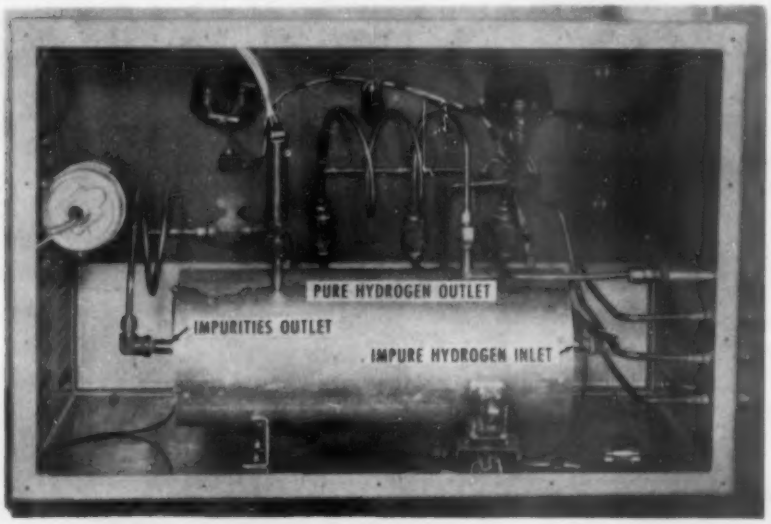


Cosden Joins Race Toward More Styrene

This styrene and polystyrene plant at the Big Spring (Tex.) refinery of Cosden Petroleum Corp. is being expanded to a capacity of 60-million lb. per year, three times its present output. The ethylbenzene, from which styrene monomer is made, will be manufactured by the Alkar process, Universal Oil Products Co.'s new way of making alkylates catalytically with benzene and regular-grade ethylene (PW—Nov.20'59,p38). Badger Mfg. Co. of Cambridge, Mass., is the contractor for this expansion program. The benzene will come from Cosden's BTX unit, which was Cosden's first petrochemical venture, in 1952.

the world's population expands, its need for foods and other agricultural products also expands, Vernon pointed out.

At the same time, the total acreage available for agriculture shrinks, and the farming population decreases. "With the damage done yearly to crops by weeds and insects estimated to be around $15-billion, the growth of the pesticide industry is inevitable," he stated.



A PALLADIUM COIL, electrically heated to 660F, is used in this purifier to make . . .

Pure Hydrogen by Diffusion

Hydrogen can now be made "ultrapure" by means of a palladium-diffusion process developed by Engelhard Industries, Inc.

Hydrogen is being used in increasing quantities today. It is manufactured by cracking petroleum hydrocarbons (PW—Jul.24'59,p38), as a byproduct of catalytic reforming, or by the dissociation of ammonia.

In all cases, the hydrogen produced is not pure; it contains other gases in various proportions. When it is made from ammonia, for example, the mixture consists of 75% hydrogen and 25% nitrogen by volume.

For many applications, a reasonable amount of impurities is not objectionable. But when pure hydrogen is required, the new process offers a simple, economical, and fool-proof method of obtaining it.

The impure hydrogen is forced through a thin tube of palladium, which is coiled within a container. The palladium selectively allows hydrogen to diffuse through the walls of the coil, while stopping the other gases.

The pure hydrogen is collected in the container surrounding the coil, and is continuously removed to storage.

The impurities, with a small amount of hydrogen, are conducted through the coil, collected at the end of it, carried away.

The operation takes place at a pressure of 410 psi. and a temperature of 660F. By means of a carefully controlled vacuum circuit, no hydrogen is allowed to reach the palladium during the heating or cooling-off periods, because at 302F palladium in the presence of hydrogen becomes a brittle, impervious isotope, β-palladium.

The demand for pure hydrogen is expected to increase significantly, but its ultimate potential is still unexplored.

The advantage of ultrapure hydrogen in many applications has been recognized for some time, but there was no economical process for its production.

The list of users of diffusion-purifiers is already impressive, both in the U.S. and in Europe. These are mostly research laboratories, metallurgical companies, and makers of electronic equipment.

For example, Texas Instruments Inc. has one of Engelhard's diffusion purifiers. It uses the hydrogen to provide an inert atmosphere for growth of semiconductor crystals. Since their purity is measured in billionths, ultrapure hydrogen is essential.

Viscosity Gauge For Polymers

Processes that are governed by the viscosity of the material produced can now be controlled automatically by a new ultrasonic viscometer developed by Bendix Aviation Co., Cincinnati.

This viscometer has many applications in the oil industry, Bendix says—for example, in processes where mixtures, such as fuel oils or asphalts, must be blended to a specific viscosity.

At the recent meeting of the Instrument Society of America, in Houston, A. W. Wotring and T. B. McAveeney, of Monsanto Chemical Co., described how their company uses an ultrasonic viscometer to follow the progress of polymerization in certain of its products. At the Philadelphia plant of Rohm & Haas Co., an ultrasonic viscometer is used to determine an end point of polymerization.

The new Viscomparator gives an "analog" reading immediately usable for the control of the process. No temperature correction is needed.

This is accomplished by using two "sensing blades," one plunged in the sample, the other into a specimen of the same material, prepared beforehand in the laboratory, at the exact viscosity that is desired in the process.

The blades are excited electrically, and thus subjected to longitudinal ultrasonic vibrations. When a blade is plunged into a material, the vibrations are resisted—or "damped"—by the consistency of this material. The more viscous the material, the greater the damping effect.

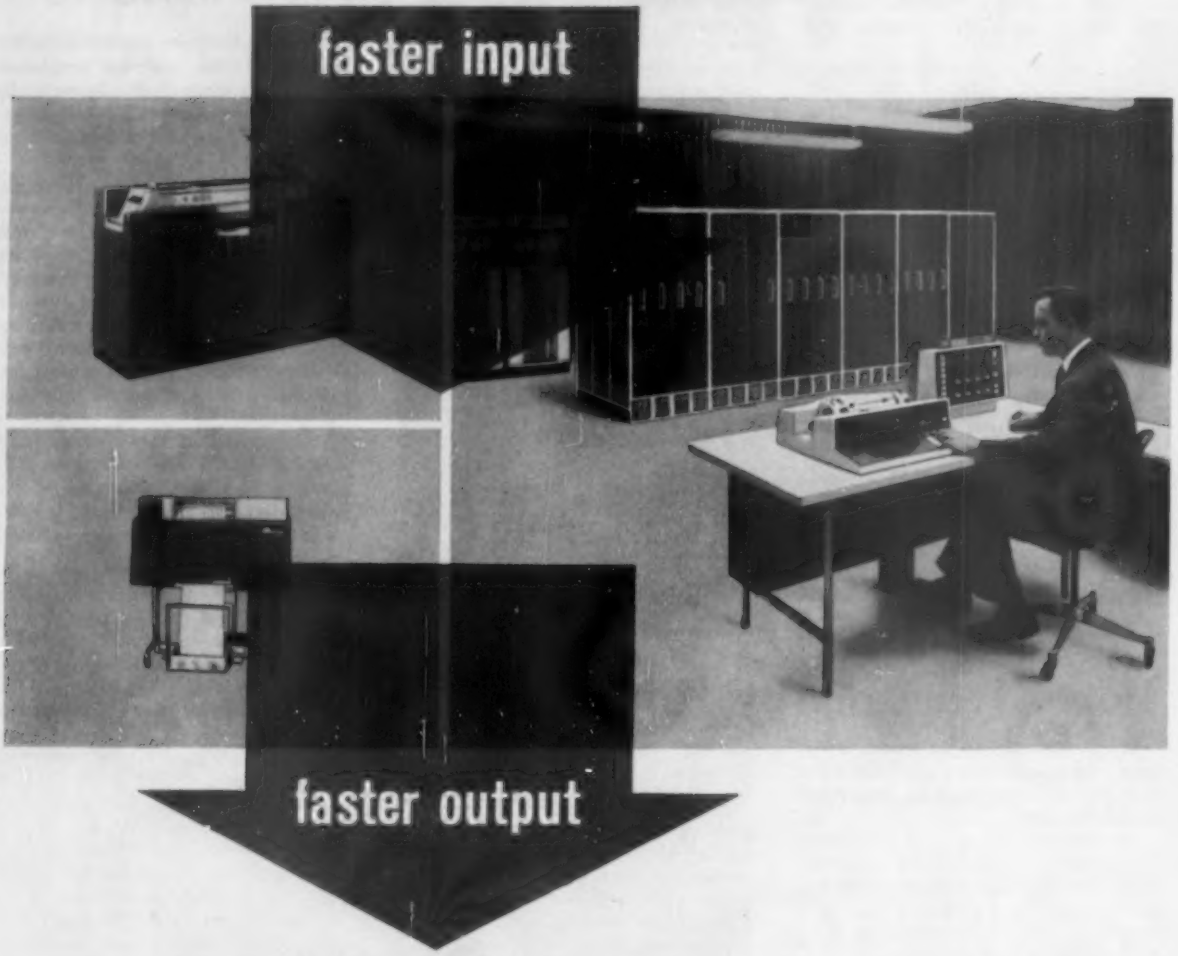
When the viscosities of the sample and the specimen in the Viscomparator match, the process is completed, and the analog signal can shut the reaction off automatically. As the two sensing blades are at the same temperature, there is no need for any correction.

It matters little, the manufacturer says, if the actual viscosity is measured exactly, the important thing is that the proper viscosity is reached.

In earlier ultrasonic viscometers, only one blade was used. The damping intensity was continuously measured, and the process could be stopped when the desired viscosity level was reached. To get an accurate reading, a correction had to be made for the temperature of the sample.

This model is the one being used by Monsanto and Rohm & Haas. The new Viscomparator is currently being tried out at the Big Spring (Tex.) plant of Cosden Petroleum Co.

with IBM's new, high-speed 1401 System for



... the powerful IBM 7070 now packs even greater processing power

Greater flexibility in putting your problem on computer . . . greater speed in taking results off . . . greater flexibility in handling peripheral operations—these are the features that IBM's exciting new 1401 System brings to the IBM 7070. The 1401 balances input/output speeds to match the tremendous processing speed of the 7070, adds powerful off-line editing and programming facilities to free the computer for more profitable work. The total system—designated the tape-oriented IBM 7070—gives you lower job cost . . . more production per dollar.

The tape-oriented 7070 employs the 1401 System to boost card-to-tape conversion from 500 to 800 cards a minute. The 1401 also features an exclusive horizontal chain printer that turns out crisp, perfectly aligned copy at 600 lines a minute. This unique printer moves paper at magnetic tape speeds—up to three and a half times faster than conventional printers!

With these advances comes unusual flexibility. The tape-oriented IBM 7070 is a solid state, high-capacity system. It can be expanded from a single-channel 4-tape to a four-channel 40-tape system. It can read on one to four channels simultaneously with computing. And in keeping with IBM's concept of Balanced Data Processing, the 7070 is linked with comprehensive services ranging from personnel education and program planning through reliable service engineering.

For full information on the new tape-oriented 7070 call your IBM representative. Like all IBM equipment, the 7070 System may be either purchased or leased.

IBM®

BALANCED DATA PROCESSING

What's New / IN PROCESSING AND PETROCHEMICALS

Imperial Chemical Industries, Ltd., will start work this spring on the first stage of its planned $280-million petrochemical complex at Severnside, southwestern England.

A 35,000-ton-per-year ethylene oxide and ethylene glycol plant is first on the agenda. Cost will be about $14-million.

Ethylene will come direct by pipeline from the petrochemical center of Esso Petroleum Co., Ltd., at Fawley, near Southhampton.

Esso will build a $2-million, 70-mi. pipeline to supply the ethylene to ICI. It is said to be the first in the United Kingdom to link an oil refinery and a large chemical plant.

The Fawley plant will also get another steam cracker in a program to boost the plant's 40,000-ton-per-year ethylene capacity. Cost of this project: $15.4-million.

•

Plans are being drawn for a 10,000 b/d cat cracker at British Petroleum Co.'s still-uncompleted Dinslaken refinery in the Ruhr, West Germany. The refinery, now under construction, is expected to be on stream by June. The new units will be ready by mid-1961.

•

Irving Oil Co.'s refinery at St. John, New Brunswick, is slated to go on stream next month. The 45,000 b/d plant will produce gasoline, light and heavy fuel oil, solvents, and asphalt.

•

A dictaphone is helping to speed up operations at the Whiting refinery of Standard Oil Co. (Ind.)

Supervisors are using the portable, battery-powered device during a revamping job on one of the plant's cat crackers. As a foreman makes his rounds on the job, he dictates instructions, directions, hints, and guides. These are passed on to the foreman who relieves him on the next shift.

The recorder has cut out so much time-consuming paper work that the company expects it to become as much a part of maintenance operations as the work list.

•

United Carbon Co. will spend $2.5-million to build a new company center, just outside of Houston. The three-building complex will house most of the company's research and development personnel. A laboratory with adjacent polymer development facilities is planned.

•

Engineering

Production of a new type of styrene-butadiene latex—Dow Latex 630—has been announced by Dow Chemical Co. It's high shear stability, a result of new polymerization techniques, will make it useful on all types of commercial coating equipment, Dow says.

DIRECT PIPELINE TO THE WORLD'S OIL CENTERS

CARGO OR PASSENGER, IT'S KLM "THE OILMAN'S AIRLINE!"

FROM HOUSTON: direct to Europe, Africa, the Near, Middle and Far East. FROM MIAMI: direct to South America. Daily service. FROM MONTREAL: direct to Europe, Africa, the Near, Middle and Far East. FROM NEW YORK: direct to all Europe and beyond; also to Curacao, Aruba and South America. IMPORTANT: Your cargo receives rapid ground handling. Awkward shapes easily accommodated. FOR PASSENGER SERVICE: Call your Travel Agent or KLM office. For cargo service: Contact your Cargo Agent, Forwarder or KLM office.

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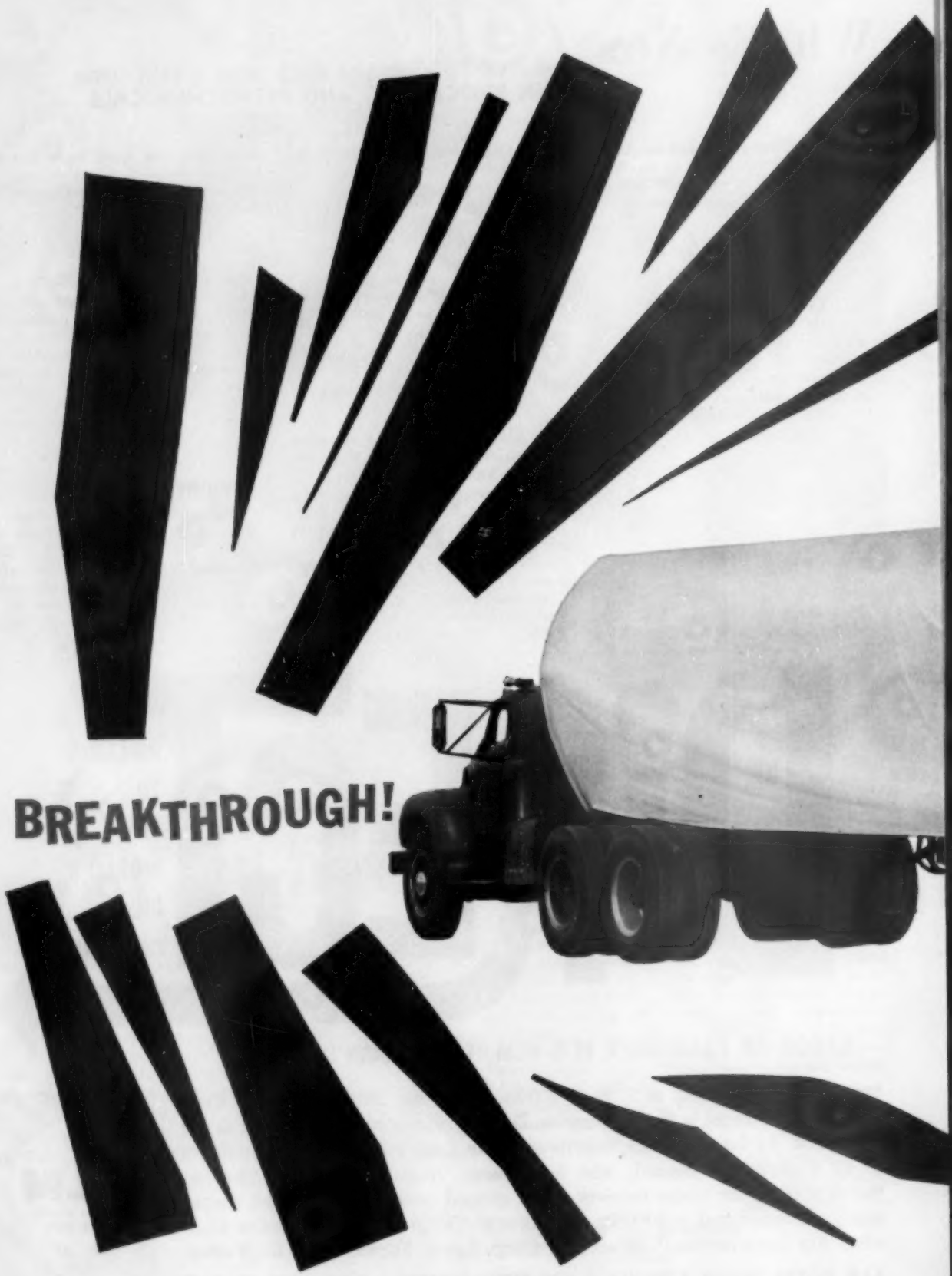
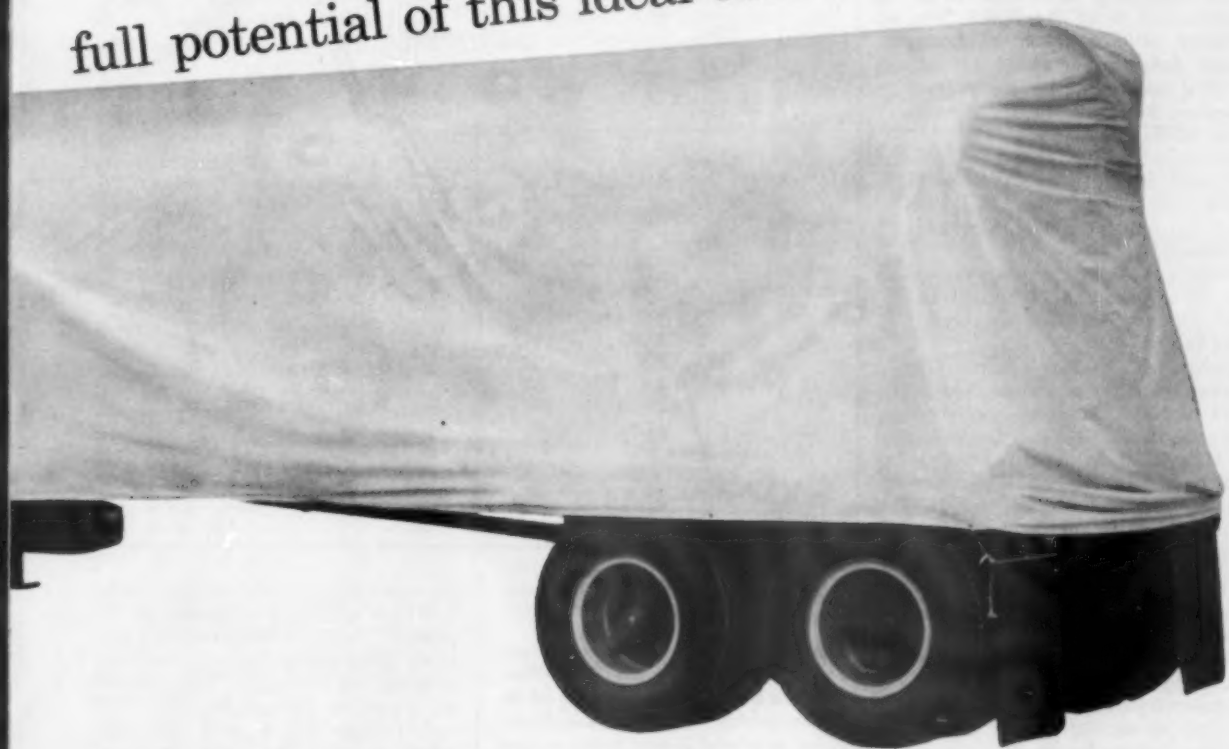
THE WORLD OVER KLM ROYAL DUTCH AIRLINES

THE WORLD'S FIRST AIRLINE


BREAKTHROUGH!

Trailmobile announces . . .

a revolutionary approach to aluminum tank design that for the first time utilizes the full potential of this ideal tank material!



We are now taking the wraps off a new and dramatically different aluminum tank—a design so different that a full presentation of its values becomes impractical in this limited space.

TR-861

Watch for your Trailmobile representative. He'll soon be by to show how fully this long sought "breakthrough" promises to benefit you.

TRAILMOBILE INC.

CINCINNATI 9, OHIO • SPRINGFIELD, MISSOURI • LONGVIEW, TEXAS • BERKELEY 10, CALIFORNIA

Trunkline Expands, Gains Own Market

Trunkline Gas Co., now primarily a supplier to Panhandle Eastern Pipe Line Co., its parent, will start delivering directly to major utilities for the first time with completion of its current $82-million expansion program.

Trunkline operates a 1,200-mi. pipeline from McAllen, Tex., to Tuscola, Ill. (map).

New construction slated for completion early this spring includes: a 204-mi. extension from Tuscola to White Pigeon, Mich.; 460 mi. of 30-in. loops between Longville, La., and Tuscola; 44 mi. of 24-in. loops in Texas; and 188 mi. of gathering lines of different diameters in Texas and Louisiana.

Panhandle now takes upward of 350-million cf/d of Trunkline's total deliveries of 375-million cf/d. Increased deliveries of about 135-million cf/d resulting from the present expansion, however, will go directly to two Michigan utilities.

About 23.5-million cf/d of Trunkline's total capacity is allocated for 28 communities along its line in Louisiana, Mississippi, Tennessee, Kentucky, and Illinois.

Deliveries to these customers seldom reach their maximum, however, and aren't expected to climb appreciably in the future.

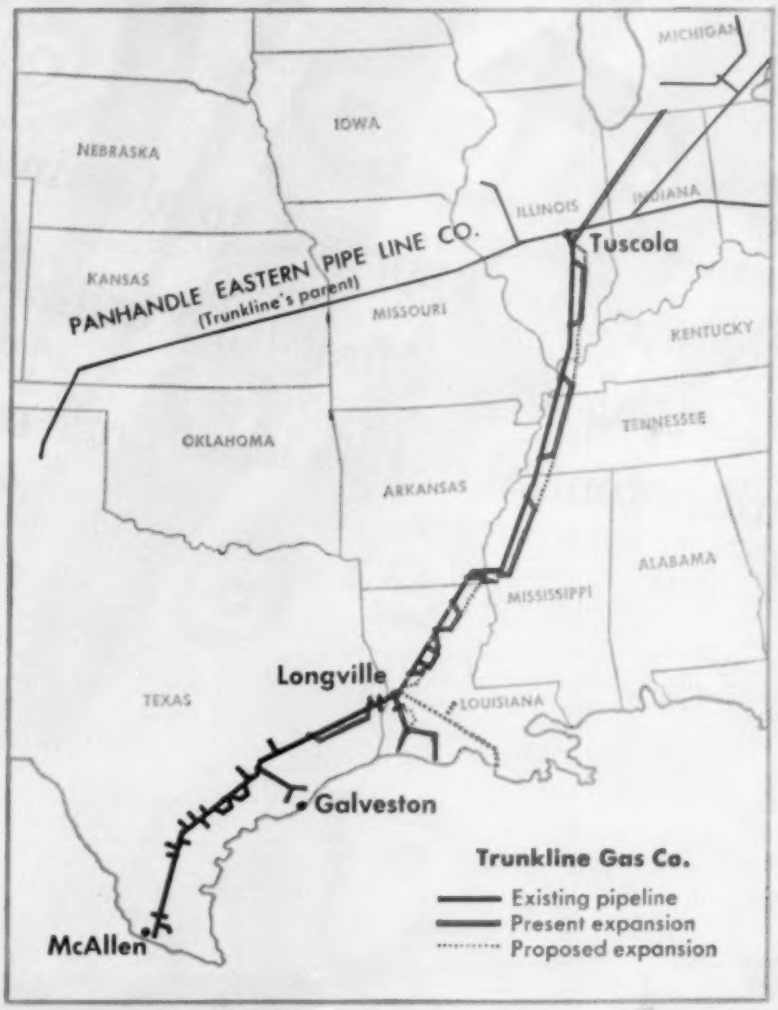
Panhandle's primary purpose in forming Trunkline was to develop gas sources in South Texas to supplement its supplies from the Texas Panhandle and Hugoton fields.

After the new loops under construction are completed, Panhandle will still be Trunkline's biggest customer.

Trunkline's most important new outlet will be Consumers Power Co., of Jackson, Mich., which will take 100-million cf/d starting with the 1960-61 heating season.

Consumers Power will take delivery at a point on its system on the Michigan-Indiana border about 20 mi. east of South Bend. It will then deliver the gas to more than 300 Michigan communities, including the heavily industrial cities of Pontiac, Flint, Saginaw, and Lansing. Transportation to its markets will be through its own lines, plus the systems of Panhandle and Michigan Gas Storage Co.

Trunkline will also deliver 6-million cf/d directly to Michigan Gas Utilities Co., of Coldwater, a small amount compared with deliveries to Consumers Power, but larger than any of the deliveries to utilities that the transmission company is now serving.



Trunkline plans to expand the capacity of its system to 710-million cf/d with the complete looping of its line, for which Federal Power Commission approval is now being sought (PW—Feb.12'60,p45).

Besides connecting loops, this project would also include more gathering and lateral lines in Louisiana.

If this $45.1-million project is authorized, maximum deliveries to Panhandle could be increased to about 545-million cf/d.

At the same time, Trunkline is under agreement to provide Consumers Power with a maximum of 200-million cf/d of gas by 1962. And it will continue to supply its existing customers with their requirements.

If the proposed expansion is approved, Trunkline plans to add two other customers in Indiana: the cities of Knox and Rensselaer, which would get a total of 3.8-million cf/d.

If Panhandle does take the maximum of 545-million cf/d, it is expected to shore up Trunkline's deliveries to Consumers Power to meet the utility's contract.

A Panhandle official indicates that delivery arrangements would be flexible.

Some 440-million cf/d of Panhandle's gas will continue to be detoured through the petrochemicals plant of U.S. Industrial Chemicals Co. at Tuscola for extraction of non-methane hydrocarbons.

After these hydrocarbons are re-

moved for petrochemicals, dry gas is returned to the lines of Trunkline and Panhandle for delivery to their heating customers.

Panhandle is set to ask FPC approval to spend $60-million to build 300 mi. of loops along its own line from Texas to Detroit to take the additional gas from Trunkline, plus another 200-million cf/d from its own sources.

Panhandle serves an area that includes Illinois, Indiana, Ohio, and Michigan. Its principal customers are Consumers Power, East Ohio Gas Co., and Ohio Fuel Co.

"There has been a great shortage of gas in this territory," a Panhandle official says.

With completion of the present and proposed construction by both Panhandle and Trunkline, combined capacity of their systems is expected to climb to between 1-billion and 1.5-billion cf/d.

The companies don't foresee any obstacles to FPC approval of their latest proposals. Target date for completion of both is next winter.

Under recent agreements, a Panhandle official reports, the companies are also assured of gas reserves totaling more than 4-trillion cu. ft., which is felt to be adequate to meet requirements for the next 20 years.

What's New / IN PIPELINES, TANKERS, STORAGE

Canada's National Energy Board has completed hearings on the two big plans to export gas to the U.S., and the Canadian petroleum industry is hoping for "an early favorable verdict."

Decisions on the projects were originally expected to be handed down within six weeks after the hearings began on Jan. 5 (PW—Dec.18'59,p50).

When the hearings opened, however, opposition developed over the possibility that the export of about 6.3-billion cu. ft. over a 25-year period might create a domestic shortage (PW—Jan.15'60,p31).

Despite prior approval of the plans by the Alberta Gas Conservation Board, NEB then ordered proof of adequate reserves, which it's now studying. Canadian producers, early friends of the project (PW—Jan.22 '60,p59), are optimistic that NEB will rule favorably on the proofs and projects within a month.

•

Worldwide production of the Dracone, a sausage-shaped nylon-rubber container for tow-transportation of products, will be launched by Dracone Operations, Ltd.

The Dracone was first tested successfully last spring, when one was towed from England to Holland with a cargo of liquid hydrocarbons (PW—Jun.19'59,p87).

The collapsible containers are currently being used in Great Britain, Nigeria, and countries in the Far East.

•

Engineering

A new electronic analog that can reproduce vibration patterns of pipe in a compressor station before the pipe is actually installed has been developed by Worthington Corp.

Prior reproduction of harmful pulsation patterns, Worthington says, would enable a company to coordinate the various piping components into a unit that would be free of vibration.

In the past, according to the compressor manufacturer, the pipe had to be welded together before any of the wear-causing vibrations could be detected.

Katy Seeks Financing for New Line

Authorization for a public sale of securities to finance the building of the proposed products pipeline of Missouri-Kansas-Texas R.R. has been sought from the Securities & Exchange Commission. Approval is expected, without hearings, in perhaps two months.

In 1957, Katy, together with the New York Central R.R., announced plans for a line from Houston to the Northeast. Failure to gain throughput forced its abandonment, however.

Then, in 1959, Katy announced plans to build a line on its own from West Texas to the Upper Midwest (PW—Nov.6'59,p120).

The line would be built by Mid-American Pipe Line Co., of Tulsa, which was formed by Southern Management Co., a Katy subsidiary.

Upon its organization in 1958, Mid-American received $40,000 from Southern Management for 40,000 common shares. Another 80,000 shares are owned by two underwriting firms.

Southern Management also loaned the new company $215,000 and conducted preliminary surveys, for which it got $480,000 in promissory notes.

Total cost of the line is estimated at $71,742,500, only part of which is to be raised by the public sale.

The sale would consist of $20.5-million of 6½% subordinated debentures, due in 1980, and 1,230,000 shares of common stock.

Prudential Life Insurance Co. reportedly has agreed to underwrite $45-million of the total cost.

Of this, $42-million would be in 6% first mortgage bonds, due in 1975. The remainder would be in 6% promissory notes, convertible into common stock.

The two-pronged line would extend from Midland, Tex., to Madison, Wis., and Minneapolis-St. Paul, Minn.

Propane, butane, and natural gasoline would be carried as far as the fork at McPherson, Kan. Initial capacity of that section would be 50,000 b/d and ultimate capacity 83,000 b/d. The forks would carry only propane. Initial capacity would be 60,000 b/d and peak capacity 86,000 b/d.

All the pipe for the line has been bought, and construction will start in April if approval is granted.

Contractor for the entire line will be Williams Bros., of Tulsa. Proposed completion date is Dec. 1, 1960.

How our family got to know each other *all over again*

Togetherness: Stimulant to Demand?

The trouble with gasoline promotion today is that it's becoming old fashioned. In its stress on driving, it's pushing a pastime that has lost its glamor, says Harry Moir, marketing vice-president of Pure Oil Co.

"Partly because of familiarity," he says, "the automobile is no longer the magic carpet it once was." It's no longer the chariot "that would take you out of the routine and into a new world of adventure every time you took the wheel."

The demise of pleasure driving has no single cause. "Part of it is due to crowded highways," says Moir, part to "changing living patterns, to television, to backyard swimming pools, outside barbecues, and do-it-yourself projects.

"It's lost some of its excitement and newness as a means of transportation," he laments, "while, on the other hand, air travel is in the spotlight. The airlines are doing a whale of a job romancing the new jets."

Pleasure driving today accounts for only 17% of the total leisure spending in America today—exactly where it stood in 1929, says Moir, citing Fortune magazine. And yet, we now have "better cars, better roads, better petroleum products, and more time to make sure of them."

To bring greater appeal back to driving, Moir proposes not to glamorize it, but to turn it into a symbol of family "togetherness."

The stress on "togetherness" is fundamental to Moir's approach to stimulating gasoline demand.

His proposed advertising campaign would associate the family automobile with wistful memories of childhood pleasures with mom and dad, pleasures that involved the automobile.

"I am sure many of us can remember, when we were kids, that the Sunday drive was something the whole family looked forward to," Moir continued.

"It was filled with adventure and fun."

One of the reasons this doesn't hold true today, says the Pure Oil executive, is that most families are occupied with interests that tend to divide them rather than bring them together.

But it is Moir's conclusion that the American family wants "togetherness."

"A study of Reader's Digest article titles, as well as some of the other leading consumer magazines, reveals the desire for more family sharing of activities," he says.

In Moir's opinion, the "togetherness" theme would lend meaning to

● **If the oil industry plunks down $3-million a year for an advertising campaign to boost gasoline demand, it may well follow the trail blazed by Harry Moir, marketing vice-president of Pure Oil Co. Moir last month outlined a campaign that he and his API Stimulate Demand Study Group had developed after many months of effort (PW—Jan.22'60,p78). Last week he told Petroleum Week the assumptions underlying that campaign.**

travel advertising. It would act as a broad emotional base with which other appeals could be effectively combined.

These other appeals, in Moir's proposed campaign, are a sort of fresh-air collection of Americana. They ramble from cows and the picturesque countryside to picnics and historical points of interest.

These appeals are "basic," Moir says. "This is not to say they are in the same area as motherhood and the American flag," he adds, "but I believe you will agree that they are pretty basic."

They are also emotional, says Moir. As a result, they are strong appeals, "especially when they tie in with good times for the whole family that are remembered and discussed."

"We can't say for certain that ads along this line will turn the trend [of miles driven per car annually]," says Moir, "but they do make a strong case for using the car more on weekends, and they jog the reader into thinking that it's a good idea—one that he's been thinking about, but just got too busy with other things."

To succeed, however, Moir admits that a "togetherness" campaign must not become "sugary" and "unrealistic."

There is no need to treat "togetherness" in a sugary manner, he says. It is a simple fact of life that the happiest families are close families with family interests. This theme, therefore, need not be overdone to reach the sympathies of the family motorist.

At the same time, the campaign cannot disguise the problem of driving on crowded roads.

"Just as we don't want to go overboard or get sugary in our 'togetherness' approach, we don't want to be unrealistic about crowded road conditions within cities," he says.

"If, in our advertising, we sit back and talk like Pollyanna, the motorist is going to say we don't know what we're talking about. Crowded road conditions in cities are a fact of life.

"We feel our advertising can counteract this best by showing the motorist we are aware of the problem, and then move on from there with some sensible, attractive, engaging suggestions for getting him to get out and away from the crowded city."

Moir would turn primarily to magazines for his campaign, because he considers them to be the most "flexible" medium for instilling within the American motorist a realizaton that the automobile can be a means to greater "togetherness."

His proposed campaign would place $2.2-million of full color advertising in four of the nation's top consumer magazines.

In addition, Moir would place more than $800,000 worth of advertising in several Sunday newspaper supplements.

Publicity and trade paper advertising are also included in a campaign that would cost $3.4-million altogether.

OR SMELLED fresh cut alfalfa? This ad asks. This is Moir's way of tugging at the motorist's inner longing for the great outdoors.

What's New / IN MARKETING

Oriental Refining Co. won a round last week in its fight to stop 19 oil marketers from selling at "unreasonably low prices" in Colorado.

The Colorado Supreme Court reversed an opinion by Judge Edward J. Keating, of Denver, who had dismissed Oriental's injunction suit last October.

Keating had held that Colorado's Unfair Practices Act of 1937, on which Oriental's suit is based, is unconstitutional. The Supreme Court disagreed, by a vote of 4 to 2, and ordered Keating to try the case on its merits.

•

To some oil men, today's "marketing revolution" may be better described as a "marketing purge," said Adam J. Rumoshosky, director of the API Marketing Division, last week.

He told the Iowa Independent Oil Jobbers' Assn. that the "harsher aspects of the marketing revolution" could have been avoided if marketers had "taken the offensive against the problems that confront us today."

"We might have brought about the Marketing Era through evolution—rather than the more painful process of revolution," he added.

Marketing's two main problems, he said, are under consumption and consumer price resistance. Their solutions: aggressive market hunting and increased efficiency, said Rumoshosky.

•

The price war that was apparently smoldering behind a conspiracy between a dealers' association and a Teamsters' local has spread beyond Hammond, Ind., where it started.

The Gasoline Retailers' Assn. of Lake County and Teamster local 142 were forced to end their ban on dealer price signs and trading stamps on Jan. 5. A few weeks later price signs emerged—flashing cut-rate prices.

Prices of 11¢ per gal. below normal appear to be spreading to Gary, East Gary, and Ogden Dunes, Ind.

•

In England, expanding oil heat marketers invaded Windsor Castle and emerged victorious last week: The Queen's royal palace will switch to oil.

Emphasizing the much belated growth of central oil heating in England, Windsor Castle is but one of the thousands of residential buildings there (and on the continent) to change over from coal (PW—Jul.3'59, p34).

•

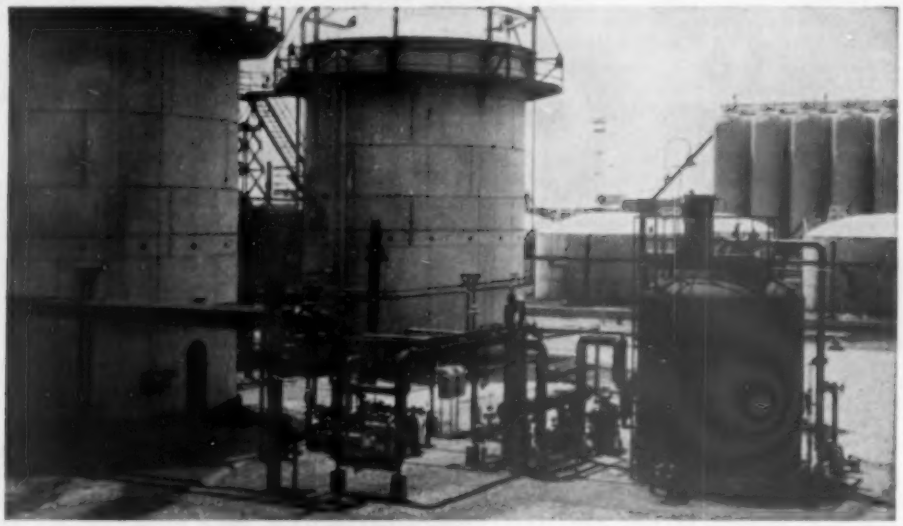
Calendar reform—something oil marketers believe could be a stimulant to demand—remains stalled for lack of funds.

Expected financial aid from large foundations, such as The Canada Council, has failed to materialize, Arthur J. Hills, president of the International World Calendar Assn., in Ottawa, told PETROLEUM WEEK.

The association's proposed calendar would stabilize holiday dates and increase the number of three-day weekends. Marketers who want to see whether three-day weekends boost demand can study 1960: This year every holiday that can create a three-day weekend does so—except Columbus Day.

PRODUCT IMPROVEMENT WITH

PETRECO



Compare the small, compact Petreco Electrofining Precipitator in the foreground with the large-diameter, twice-as-high open agitators.

Cities Service reduces oil-treating caustic from 15000 to 3400 lbs./month with ELECTROFINING precipitator*

Since the Cities Service Oil Company refinery in East Chicago, Indiana, replaced its two large air-blown agitators with an ELECTROFINING Precipitator, the caustic needed to treat burning oil has been reduced from 15000 pounds per month to 3400 pounds per month. This is possible because the intense caustic contact with the ELECTROFINING Precipitation Equipment enables *less caustic to do more work.*

OTHER IMPORTANT ELECTROFINING PRECIPITATION BENEFITS

■ *ELECTROFINING Precipitation Equipment Simplifies Waste Disposal.* When agitators were used, 15000 pounds of oil contaminated caustic had to be disposed of every month. The ELECTROFINING unit has reduced the amount to be disposed of to 3400 pounds per month. Since the ELECTROFINING unit is vapor-tight it permits no escape of oil vapors to the atmosphere as the agitators did.

■ *Requires Less Construction Material; Less Space.* Note the physical difference. The amount of sheet steel and pipe required for the construction of the agitators was many fold that used in the custom-built, virtually pre-fabricated ELECTROFINING Precipitator. The real estate occupied by the ELECTROFINING unit is only one-third the amount of space required by the agitators.

■ *Replaces Manual with Automatic Operation.* Agitator treatment is controlled by the judgment and experience of human operators. ELECTROFINING units are automatically controlled at all times to provide optimum treating efficiency as established by laboratory pilot-plant operation.

■ *Reduces Heating Requirement.* After agitation the oil had to be heated to 120°F. to remove water haze. The ELECTROFINING unit treats the oil at 85°F. and no after treating heat is required so that total fuel requirements are reduced.

Find out now how ELECTROFINING in your operation can save dollars and make sense. Write or call . . .

*ELECTROFINING *is a registered trademark of Petrolite Corporation.*

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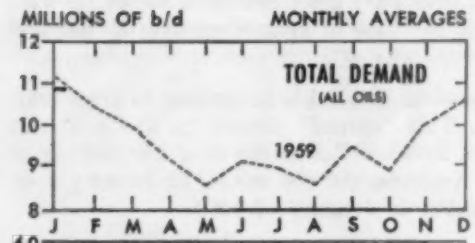
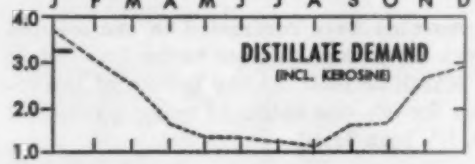


Figures for period ended February 19, except as noted

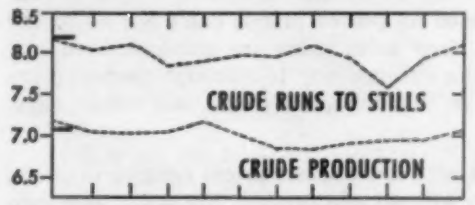
TOTAL DEMAND

Latest 4-week average	*
Year ago	10.633



DISTILLATE DEMAND

Latest 4-week average	*
Year ago	3.381

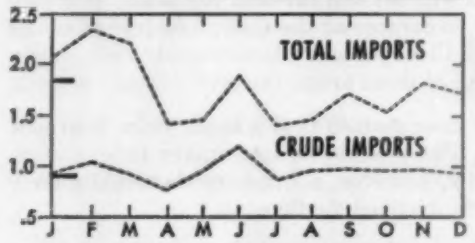


RUNS TO STILLS

Latest week	*
Previous week	8.077
Year ago	7.987

CRUDE PRODUCTION

Latest week	*
Previous week	7.256
Year ago	7.208

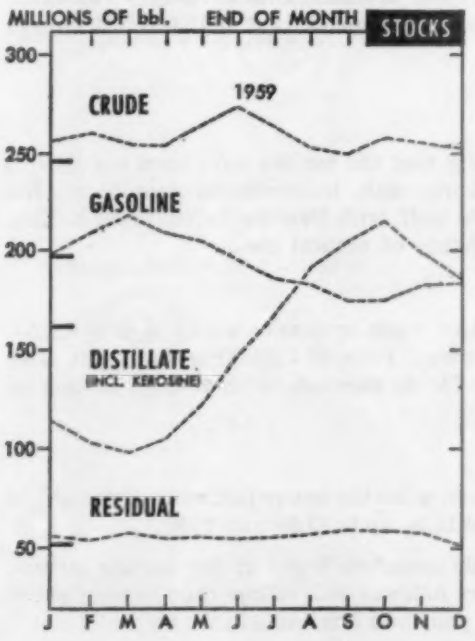


TOTAL IMPORTS

Latest week	*
Previous week	1.615
Year ago	2.146

CRUDE IMPORTS

Latest week	*
Previous week	.814
Year ago	.947



CRUDE STOCKS

Week ended 2-13	248.9
Previous week	249.4
Year ago	256.0

GASOLINE

Latest week	*
Previous week	208.9
Year ago	206.0

DISTILLATES

Latest week	*
Previous week	142.0
Year ago	103.6

RESIDUAL

Latest week	*
Previous week	48.0
Year ago	55.5

The number of rotary rigs readily available in the U.S. and Canada totaled 2,471 in January.

Of the total, 2,341 rigs are located in the U.S. and 130 in Canada, according to data compiled by Mission Manufacturing Co. for the Petroleum Equipment Suppliers Assn.

Texas, Louisiana, and Oklahoma lead with the greatest number of workable rotaries.

Mission reports that 751 rigs are located in Texas, or 32% of the total number available in the U.S.

Most of the Texas rigs are concentrated in West and Southwest Texas and on the Gulf Coast.

Louisiana has 388 rotaries, or close to 17% of the nation's available units. The majority in Louisiana—145 rigs—are located on the Gulf Coast, reflecting the step-up in offshore drilling anticipated this year.

Oklahoma has 273 rotaries available, with the rigs fairly evenly distributed between the northern and southern parts.

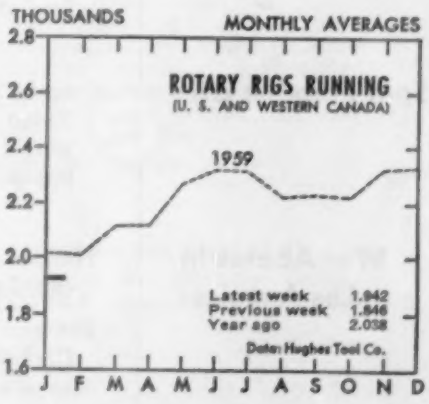
Other states which show a relatively heavy concentration of units are Kansas, with 185 operable rigs; New Mexico, with 138; and California, with 121.

Almost 90% of the workable rigs in Canada are located in Alberta.

According to the Mission survey, 116 of Canada's 130 operable rigs are in Alberta; nine are in British Columbia, three in Saskatchewan, and two in Ontario.

* * *

*Due to the Washington's Birthday holiday, most figures for the week ended Feb. 19 were unavailable at press time.



The Market Trend

Refinery Margins are Scraping the Bottom

The refiners of the nation seem bent on holding their own feet to the fire. Through too much optimism, they have got themselves loaded up with a surplus of products. And this is the time of year when over-all demand shrinks seasonally.

The refiners' predicament shows up in what is happening to gross margins, product prices over crude. This "spread" slipped to 61¢ a bbl. in January in the areas east of the Rockies. According to a compilation of Independent Petroleum Assn. of America, the 61¢ spread in January compared with 64¢ in December, and 77¢ in January of 1959.

Historically, refiners' gross margins have contracted in the months from January to June. The current 61¢ margin is close to the lows hit in May of 1958, April of 1949, and March of 1950. At the bottom of the recession of 1949—a depression year for oil—the indicated margin, compiled by IPAA, was 49¢. In good years, it's been $1.10.

Gross margin indicators, based on posted prices, don't tell all of the story in a weak market, either. Many sales today are going at discounts. Unfortunately, nobody has found a surefire way to discount operating expenses. It takes about 80¢ a bbl. on the average, a Gulf Coast refiner says, to run his plant.

This week, refiners are faced with low product prices relative to crude. There is no assurance that prices will not slip further. No. 2 fuel is a case history of this dilemma: 8¢ a gal. in cargoes at the Gulf; 8.5¢ into pipelines in Oklahoma; 9.125¢ into trucks in Chicago; and 9.6¢ delivered to consumers in transports in Philadelphia. In all of these areas, the price already is weak.

The markets are sufficiently disorganized that a crude price drop now would only make matters worse. There would be momentary relief for refiners if crude fell. Psychologically, however, a cut in crude would merely drive buyers away until products declined further.

You may be hearing soon of some dramatic cuts in refinery runs. One Midwest refiner already has made an unannounced cut of 12,000 b/d. Others may follow.

Retail vs. Wholesale:

Independent marketers are beefing that the majors have been too slow to cut retail prices after drops at wholesale. Independents claim that a fall of 0.625¢, to 8¢, for No. 2 at the Gulf, with New York City retail holding firm at 14.9¢, plays into the hands of natural gas.

Spot Propane Off:

Propane prices continue to slip. Last week, spot sales were closed at 4.125¢, Group 3—0.375¢ below the contract price of 4.5¢. This week spot sales were closed on the basis of 3.75¢ to resellers, with brokers buying as low as 3.5¢.

War Abates In Los Angeles:

The Los Angeles price war took a turn for the better last week. Retail prices (ex tax) jumped from 9.9¢ and 12.9¢ up to 17.9¢ and 19.9¢.

The war started when some chain operators began giving trading stamps. It abated when other operators followed suit rather than cutting prices to equate to stamp values. If you can't lick 'em . . . . .

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of February 19

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- Gasoline, 98 oct prem 12-13
- Gasoline, 92 oct reg 10.75-11.5
- **Kerosine ..... 9↓-10**
- **Heating oil, No. 2 ..... 8↓-9.1**
- **Gas oil, 48-52 d.i. ..... 8.25↓-9**
- Fuel oil, bunker "C" $2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130 ..... 14.75
- Gasoline, 93 oct research prem 11
- Gasoline, 87 oct research reg 10.125
- Gasoline, 79 oct research 9.375
- Gasoline, 70-72 oct motor method 9.25
- **Kerosine ..... 9.25↓-9.75**
- **Heating oil, No. 2 ..... 8↓-8.375**
- **Gas oil, 48-52, d.i. ..... 8.25↓-8.625**
- Fuel oil, bunker "C" $2.00

New York Harbor, barges
- **Kerosine ..... 10.3↓-11.1**
- **Heating oil, No. 2 ..... 9.3↓-10.1**
- Fuel oil, No. 6 ..... $2.37-2.47

Okla.-Group 3, northern shpt., bulk
- Gasoline, 91 oct reg 10.5-11.25
- Kerosine 10.125-10.375
- **Heating oil, No. 2 ..... 8.5↓-9↓**
- Fuel oil, No. 6 ..... $1.60-1.80

Chicago, bulk
- Gasoline, 91 oct reg 11-11.25
- Heating oil, No. 2 ..... 9.125-11.35
- **Fuel oil, No. 6 high sulfur ..... 7.15↓**

Los Angeles, rack
- **Gasoline, 88 oct reg ..... 11.65↓-12.65**
- Diesel fuel, PS 200 ..... 7.75-11.25
- Light fuel, PS 300 ..... $2.80
- Heavy fuel, PS 400 ..... $2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3 ..... 4.5
- FOB Breckenridge, Tex. 4

LP-Gas
- **Propane, Oklahoma (Group 3) ..... 4.5*↓**
- Propane, Baton Rouge 5.625-5.875

Pennsylvania Lubes
- Bright stock, 25 p.t. 23
- 200 vis. neutral, 25 p.t. 27

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i. 25-26
- Neutral, solvent, 200-210 vis 21.5-22.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i. 25
- Neutral, solvent, 200 vis 21.5

**Effective Feb. 12.*

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130 ..... 15.875
- Gasoline, 79 oct research 9.75
- Kerosine 10.625
- Gas oil, 48 d.i. minimum 9.875

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9 ..... $2.62-2.97
- North Dakota, 36.0-36.9 ..... 2.47-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ..... 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9 ..... 2.92-3.22
  - West Texas, sweet, 36.0-36.9 ..... 3.00
  - West Texas, N.M., inter., 36.0-36.9 ..... 2.93
  - West Texas, N.M., sour, 32.0-32.9 ..... 2.71
  - East Texas, flat 3.05-3.25
  - Mirando, 28.0-28.9 ..... 3.31
- Illinois Basin, flat 3.00
- Pennsylvania Grade, Bradford dist., flat 4.55
- California, Signal Hill, 21.0-21.9 ..... 2.32†
- North Louisiana-Arkansas, 36.0-36.9 ..... 2.77-3.02
- Wyoming, sweet, 36.0-36.9 ..... 2.85-2.90
- Wyoming, sour, 32.0-32.9 ..... 2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.) $2.38
- Leduc-Woodbend (Alta.) 2.53
- Redwater (Alta.) 2.42
- Steelman A (Sask.) 2.435
- Virden (Man.) 2.30

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 47.0-47.9, Tucupido $3.34
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.10
- Oficina, 35.0-35.9, Puerto la Cruz 2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay 2.30
- Bachaquero, flat, Las Piedras 1.75-1.88
- Tarra, 38.0-38.9, San Lorenzo 2.83
- Lagunillas Heavy, flat, Las Piedras 2.10

†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura $1.90
- Safaniya, 27.0-27.9, Ras Tanura 1.50
- Iran, 34.0-34.9, Bandar Mashur 1.86
- Iran, 34.0-34.9, Abadan 1.81
- Iraq, 35.0-35.9, Fao 1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.67
- Qatar, 41.0-41.9, Umm Said 2.05
- Neutral Zone, Burgham, 23.5-24.4, Mina Saud 1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud 1.38

Middle East, Eastern Mediterranean
- Arabian, 34.0-34.9, Sidon $2.27
- Iraqi, 36.0-36.9, Tripoli, Banias 2.31

Far East, Cargoes FOB Lutong, Sarawak
- Seria Light, flat $2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean (USMC—21¼%) $2.24†
- U. S. Gulf-New York, dirty ..... (USMC—21¼%) $2.24
- NWI-USNH, dirty ..... (USMC—55%) $1.24
- NWI-UK/Cont., dirty ..... (Scale —51¼%) 16/9*
- Persian Gulf-UK/Cont., dirty ..... (Scale—52½%) 29/6*
- Persian Gulf-USNH, dirty ..... (USMC—60%) $5.08

**Sterling*

DEPT/International

France Is Ready to Cash In On Oil

PARIS—This year the French oil industry will start raking in returns on the investments it has made over the past decade. Producing companies expect gross sales to reach one-third of a billion dollars.

That's the return slated on the 240,000 b/d of crude and 106-billion cu. ft. of gas scheduled to flow from fields in France and its territories in 1960.

These are the forecasts made by the government's Bureau de Recherches de Petrole in its annual report published this month.

The year will also mark completion of a second pipeline from the Sahara to the Mediterranean, and a bigger-than-ever Sahara exploration program designed to turn up new fields in a hurry.

The French oil industry will have to invest some $495-million in its various activities this year to carry out its plans, according to BRP.

Exploration will absorb $172.7-million, with 62% going into the Sahara. Development of all areas will cost $71.1-million and equipment and pipeline materials, $222.6-million. Another $28.5-million, listed as "other investment" by BRP, will go mainly into purchases of oil-company stocks.

Here's where the money will come from, according to the report:

Government agencies will put up $31.3-million, oil-finance outfits $27.3-million, private French investors another $27.3-million, and foreign oil companies operating in France and the French Community $55.6-million. An additional $151.5-million will be raised by borrowing. And the remaining $202-million will come out of producing companies' profits.

The French oil industry spent some $491-million last year, up $51-million over 1958. Of the total, $155.5-million went into exploration and $81.8-million into development. Another $234.3-million was spent for equipment and pipeline materials. The remaining $19.2-million, listed by BRP as "miscellaneous investment," went mainly into purchase of oil-company stock.

An area-by-area rundown on 1959 results shows:

• **Metropolitan France**—1,410,764 ft. were drilled, compared to 1,082,680 ft. in 1958. Tests drilled totaled 238, including 156 wildcats or stratigraphic tests. Of the total, 65 were oil wells, 14 gas wells, and 159 dry holes.

• **French Sahara**—1,013,778 ft. were drilled, compared to 748,027 ft. in 1958. Of 148 tests drilled, 39 were wildcats and stratigraphic tests. Results included 110 oil producers and 38 dry holes.

• **Territories of the French Community** (including Gabon, Congo, Cameroun, Senegal, the Ivory Coast, and Madagascar)—There was a drop in footage drilled to 396,981 ft. in 1959 from 554,615 ft. in 1959. In this area, 70 tests were drilled, of which 40 were wildcats and stratigraphic tests. Of the total, 21 turned out to be oil producers, 2 gas producers, and the remaining 47 dry holes.

• **Morocco and Tunisia**—There was also a footage drop in these two countries in 1959, to 98,425 ft., compared with 104,987 the year before. A total of 19 tests were drilled, of which seven were wildcats and stratigraphic tests. Six oil producers and two gas producers were completed. The other 11 were dry.

Here's a field-by-field roundup of results in 1959:

• **Coulommes**—The BRP report shows that Petrorep's field in the Paris basin produced 3,080 b/d during the year. Of 34 tests drilled, 28 were producers.

• **Chailly-Chartrettes**—This field in the Paris basin, owned by Cep and Rap, produced 624 b/d during the year. A total of 20 wells, of 24 drilled, are productive.

• **St. Martin-de-Bossenay,** discovered in the Paris Basin in March, 1959, by Copesep, produced 400 b/d. Five producers were completed at the field, of a total of six tests that had been drilled.

• **Chateaurenard**—This Fropex field, also in the Paris Basin, produced 320 b/d during the year.

• **Parentis**—Esso's field in southwestern France produced 22,520 b/d, while the company's other field, Lugos, produced 660 b/d. A new structure, Cazaux, was discovered during the year.

• **Haricha**—SCP completed 15 tests at this Moroccan field during the year, of which ten are producers. Proved producing capacity of the field is now some 1,500 b/d.

• **Hassi Messaoud**—SN Repal and CFPA produced 26,000 b/d in this French Sahara field. During 1959, 30 tests were completed, bringing total completions in the field to 51, of which 48 are producers. Proved area of the field is now 502 sq. mi.

• **Edjele**—Creps drilled 32 tests in this Sahara field in 1959, bringing total completions to 131, of which 118 are producers.

• **Zarzaitine**—Creps now has 41 producers in this Sahara field, adjacent to Edjele, of a total of 42 holes drilled.

• **Cap Lopez**—Spaef completed 9 tests at this Gabon field in 1959, of which six are productive.

• **Tchengue**—Spaef drilled eight tests in the field, of which seven are productive. Total production in Gabon during the year climbed to 15,100 b/d.

By the end of 1959, permits covering 507,608 sq. mi. had been distributed. Of these, 57,689 sq. mi. are in metropolitan France, 295,850 sq. mi. in North Africa and the Sahara, and 154,069 in other territories of the French Community.

The French government granted 17 permits in 1959, according to the report.

Three were for acreage in metropolitan France, 12 for the Sahara, and three for Senegal.

Cabinet Shift May Ease Iraq Oil Impasse

BEIRUT—The ouster of Ibrahim Kubba as Iraq's acting Oil Minister is interpreted here as a possible move toward a more flexible oil policy by the Kassem regime.

Replacement of Kubba, a crypto-Communist, by Planning Minister Talatt Shaibani, a moderate leftist, is expected to revive the whole question of amending Iraq Petroleum Co.'s concession.

Talks with IPC have been deadlocked for some time over the size and location of acreage IPC was asked to give up.

And Kubba's intransigence was considered one of the biggest hurdles to a settlement.

Wage Hike to Cut Venezuela Activity

(By cable from PETROLEUM WEEK's *Caracas Bureau)*

CARACAS—Venezuelan oil companies will cut back operations further—mainly exploration—in an effort to keep costs in line as a result of the new labor contract (PW—Feb.19'60,p82.

Exploration is expected to be reduced most sharply because rising costs make the addition of new reserves in Venezuela less attractive.

Most companies estimate the increase in labor costs at 15% to 17%. That means an increase of around $60-million annually for the industry, calculated on the present payroll.

Average per-barrel cost increase for the whole industry is around 6¢. But for some smaller companies with production mainly in Eastern Venezuela, the cost hike will be 10¢ to 12¢.

The reason: Daily production per worker varies widely, from 30 bbl. for high-cost operators to well over 100 bbl. in Lake Maracaibo. As a result, the added labor cost per barrel for some will be four or five times greater than for others.

Production may also feel some impact. Some small fields in Eastern Venezuela may be shut down entirely, although the companies will try to avoid it because of the effect on regional economies, and resulting political repercussions.

Companies may continue to operate some fields simply on a "salvage" basis, in order to recover as much as possible of their investment.

Joint company operation of neighboring leases may also become a more common practice.

Companies don't know yet how much payroll increases due to a shorter work week will be offset by layoffs due to cutbacks in operations.

For one thing, payrolls have been frozen during contract negotiations, which started Oct. 1. The freeze was extended another 15 days after signing.

During the interim, companies have been trimming operations. Thus, they have excess personnel, some of whom can be shifted to other jobs.

Shell says the contract "will inevitably result in additional costs which will further weaken the competitive position of Venezuela petroleum in international markets." Shell, the only company to issue an official statement on the contract, adds that its policy was to avoid "mass layoffs." But the company observes that conditions of the international market will determine, among other things, the efficient labor force.

Industry reaction to the contract is now a mixture of disappointment at its cost, and relief that it wasn't worse. Main satisfaction is that the companies were able to turn back Fedepetrol's attempts to get control of hiring, to extend contract coverage to include management personnel, and to interfere with management freedom through a series of mixed commissions. It was also an important setback to the Communists in Fedepetrol.

Is Oil Interest in Sicily Waning?

MILAN—No new oil concessions have been acquired in Sicily since January, 1958, and several concession areas have been reduced or abandoned.

Gulf Italia has cut its Ragusa concession area from 181,000 acres to 133,000 acres, and has also applied to the Sicilian Region for further reductions.

Permits abandoned total 195,000 acres.

Compagnia Idrocarburi della Sicilia d'Arcy (Cisda), an affiliate of British Petroleum Co., has given up altogether in Sicily, including its Victoria permit, which the company had hoped to develop despite the poor quality and small quantity of the crude.

A member of the Italian state-owned ENI group, Societa Ravennate Metano, has applied for the vacated Victoria permit, however. Cisda is also giving up its San Pietro permit.

Other permits given up include the Chiusa Sclafani permit by another ENI affiliate, Saipem, and the Alessandria della Rocca permit by Societa Idrocarburi Siciliani.

As of Sept. 30, 1959, there were 58 oil permits in Sicily, covering an area of 3.5-million acres.

Of 208 tests drilled in Sicily, 114 were dry, while 69 found oil and 25 gas.

This covers the period from 1945 to Sept. 30, 1959.

Total footage drilled from 1948 to Sept. 30, 1959 was about 1.4-million ft.

Crude production for the first nine months of 1959 totaled almost 7¼-million bbl., for an average monthly output of 805,000 bbl.

The 1958 monthly average was 708,000 bbl.

Some 610,000 bbl. were produced from the Ragusa oil fields in the first three quarters of 1959, and around 110,000 bbl. were produced from the Gela fields.

French Still Pushing Sahara Priority

PARIS—The French went on record again last week that they'll continue to ask for preferential treatment despite the reluctance of their Common Market partners and known U.S. disapproval.

France is asking, and will continue to ask, that oil products originating in the European Economic Community, especially those made from Sahara crude, be given priority in the six-nation community. That was the statement made last week by the French Undersecretary of Finance, Valery Giscard d'Estaing, and it scotches the rumor that France might abandon its plea for special treatment.

The French would now like to have the whole question of treatment of Sahara oil settled by the energy Ministers of the Common Market countries.

Negotiations on a common external tariff on oil products are slated to be resumed, along with a discussion on remaining "problem" products, when Common Market tariff experts reconvene in Rome at the end of this month.

Giscard d'Estaing said, however, that the ministers will meet to discuss a European energy policy before the Rome tariff meeting.

The energy ministers will be the third Common Market group to tackle the Sahara oil problem.

This leads Paris observers to estimate that the solution may take considerable time, and require a compromise by France and its partner.

What's New / AROUND THE WORLD

SPAIN—Esso Iberia has been granted eight permits in the extreme northeastern corner of Spain, mostly concentrated in the Catalan zone. They total 779,269 acres.

Esso has also filed a new bid for acreage adjoining its new concession, 101,232 acres in the Manresa area of Barcelona province. A Spanish company, Campsa, has also submitted a new bid for 50,663 acres in Soria province, at a site known as Fri La Llana.

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AUSTRALIA—What appeared to be the first commercial gas-condensate well in Australia has now been plugged and abandoned by Standard-Vacuum and its partners. It was their first show of gas in southern Australia. The Port Campbell wildcat, some 120 mi. southwest of Melbourne, tested 4-million cf/d of gas from 5,600 ft. Drilling was continued, but no shows of oil were encountered. The test was bottomed at 5,965 ft.

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AUSTRALIA—The Soviets are trying to peddle oil products here. A Soviet oil commission executive is now in Sydney, and the Australian Trade Dept. says there are no restrictions on imports.

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ARGENTINA—Pan Geo Atlas Corp. is setting up a subsidiary here for well logging, perforating, and other wireline services in the Comodoro Rivadavia area. Servicios Tecnicos Atlas S.A. will be headquartered in Buenos Aires.

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SPAIN—A 30,000 b/d refinery is being planned for the northwestern port of Vigo, according to sources at the Ministry of Industry. The $15-million plant is slated to be built by a group of Spanish industrialists living in America. The government is expected to give its approval.

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UNITED KINGDOM—The British gas industry proposes to spend $985.6-million on expansion during the seven years to 1966, according to a booklet, "Gas Looks Ahead," published by the Gas Council. Gas demand has climbed 12% in the past ten years, and a further 9% increase is forecast by 1966, mostly in industry applications.

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PANAMA—A $50-million refinery is planned by Continental Oil Co. and interests of National Bulk Carriers, Inc. The jointly owned plant is slated to be built on Payardi Island, near Colon, at the Caribbean entrance to the Panama Canal. The newly formed Refineria Panama S.A. has received government permission to build and completion is scheduled by early 1962.

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SWITZERLAND—The Canton of Fribourg may soon have its first oil regulations. A 49-article bill has been submitted to the local parliament to authorize granting of three-year exploration concessions of any size. The 50-50 law will supplement an existing, century-old mining and quarrying law. Concessions would be granted only to Swiss citizens or to companies incorporated in Fribourg, under the proposal. At present, the Soc. d'Interests Miniers S.A. holds the only exploration concession in the Canton. It has a working agreement with British Petroleum Co.

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PERU—Oil production dropped 5.4% last year to 48,562 b/d from 51,320 b/d in 1958. Here are the output totals by companies: International Petroleum Co. (La Brea and Parinas), 22,529 b/d; International Petroleum (Lobitos joint interest), 20,644 b/d; Empresa Petrolera Fiscal, 2,544; Cia. de Petroleo Ganso Azul, 2,203; Belco Petroleum Co., 216; Petrolera Amotape, 199; Cia. Peruana de Petroleo El Oriente, 151; and Peruvian Pacific Petroleum, 76 b/d.

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Wildcats in the News

BRITISH SOMALILAND—Standard-Vacuum has abandoned the fifth wildcat in its attempt to find this East African country's first oil, No. 1 Biyo Dader was bottomed below 4,840 ft. The test was 30 mi. due east of Berbera. In the meantime, British Petroleum got its first test under way. No. 4 Zeila, which is now below 500 ft., is the first of five shallow strat tests. The site is southwest of Berbera, which marks the western end of the Stanvac acreage. A marine seismic survey is also under way.

AUSTRALIA—The Delhi Taylor-Santos-Fraome group is drilling below 7,018 ft. in No. 1 Betoota—its second test in the Great Artesian Basin. The site is about 170 mi. north of its first test, the No. 1 Innamincka, which was abandoned at 12,637 ft.

NEUTRAL ZONE—Japan's Arabian Oil Co. is slated to start drilling its second offshore test this week. It is roughly 3 mi. from the 6,290 b/d discovery.

IRAN—The Consortium is getting ready to spud its first wildcat, near Bandar Abbas in the remote eastern area of its concession. No. 1 Suru is about 10 mi. from the coast where the Persian Gulf meets the Gulf of Oman. This is the first drilling in the area since Anglo-Iranian (now British Petroleum) drilled some unsuccessful tests on Qishm Island, off Bandar Abbas, more than 20 years ago.

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Correction

MEXICO—Hughes Tool Co. will not manufacture drill pipe in Mexico (PW—Feb.12'60,p43). Under the company's recent manufacturing agreement with a Mexican firm, equipment will be installed here for assembly of unitized drill strings.

New Algeria Field?

ALGERIA—SN Repal may be on the track of a new field in southeastern Algeria.

The company's Djebel Onk wildcat, just north of the Sahara and west of the Tunisian border, recovered both oil and gas on tests in the past few weeks.

The wildcat, which is located some 60 mi. south of Tebessa, tested 13 bbl. of oil per hour from a zone, topped at 3,707 ft., that was judged to be in either the Upper Cretaceous or the Senonian. It also flowed 31,783 cu. ft. of wet gas per hour from the Cenomanian at 6,549-644 ft. Djebel Onk, which is being drilled with a Unit Rig 15, was below 7,116 ft. in the Vraconian at last report.

T. R. FULLINWIDER moves up to vice-president of domestic sales for Mission Mfg. Co., Houston. Fullinwider, who joined Mission in 1948, has been domestic sales manager since 1957.

S. A. Wilson

T. R. Fullinwider

SAMUEL A. WILSON has been appointed manager of manufacturing for Maloney-Crawford Tank & Mfg. Co., Tulsa. He was formerly associated with Fansteel Metallurgical Corp. as assistant to the vice-president, and as superintendent of the metals and chemical division.

D. W. BLEND has elected vice-president of operations and a director of Calumet & Hecla, Inc., Chicago. He was formerly vice-president and general manager of the Wolverine Tube Division. In his newly created position, Blend will be in charge of all company operating facilities, including the Wolverine Tube Division. He has been with Wolverine since 1932.

JOE S. WHITE is manager of Republic Supply Co.'s new store serving Southwest Texas, at Carrizo Springs. He was most recently field sales representative for Republic at Alice, Tex. **E. D. Abbott, Jr.**, has been named to assist White. Abbott was formerly assistant store manager at Rule, Tex.

ROBERT N. SWIFT has been named vice-president of Motorola Communications & Electronics, Inc., subsidiary of Motorola, Inc., with offices in Dallas. He will be responsible for sales and service of radio communications products in the Southern states. Swift, formerly vice-president and manager of the Midwest sales area, with offices in Chicago, replaces **Edward L. Fall, Jr.**, who has been promoted to executive assistant to the general manager of the parent company's communications division. **Robert F. Davis**, who has been two-way radio sales manager for the Midwest area, succeeds Swift as vice-president and manager of that area.

GEORGE R. KRITZER has joined Yuba Consolidated Industries, Inc., as Houston district sales manager. He will direct sales for several Yuba manufacturing divisions serving the heavy construction, chemical, petroleum, and power industries, and will coordinate the sales efforts of Yuba agents and manufacturer's representatives in the Houston area. He was formerly a sales engineer for J. F. Pritchard Co., in Houston.

BEN C. BALL, WILLIAM H. GREENFIELD, WILLIAM R. HOGE, and **ALBERT L. LONG** have been promoted from vice-presidents to senior vice-presidents of the Republic National Bank of Dallas. Ball heads the national accounts division, and Greenfield is head of Republic's operations division. Hoge is assigned as staff coordinator of time credit, and Long is in charge of the international banking department.

G. E. Larkin

M. C. Cornish

MURL C. CORNISH has been promoted to vice-president and comptroller, and **GOLDIE E. LARKIN** to director of the automatic accounting division, for Kendavis Industries, Inc., International, Ft. Worth, management coordinating and consulting group for 25 companies. Cornish started with Mid-Continent Supply Co., Ft. Worth, one of the affiliated companies, in 1945. He has been secretary and treasurer for Mid-Continent since 1957. Larkin, who joined Mid-Continent in 1949, was promoted to manager of the IBM department in 1955.

DAVID JAMES is the new sales engineer in the Dallas office of Cooper-Bessemer Corp. He was previously assigned to the company's headquarters office in Mt. Vernon, Ohio, as a sales engineer. Before joining Cooper-Bessemer, he was associated with Ethyl Corp. and Texaco Inc.

D. James

A. Morton

ART MORTON has been named manager of quality control for Tex-Tube, Inc., Houston. Morton joined the company a little over a year ago as tubular products engineer. Before that, he was supervisor of the equipment development section of Garrett Oil Tool Co., with offices in Longview, Tex.

CHARLES B. BRIGGS, formerly vice-president of Marley Co., Kansas City, Mo., is president of the new Graver Oil & Gas Equipment Co., division of Union Tank Car Co. The new company is the former Sand Springs (Okla.) plant of Graver Tank & Mfg. Co., also one of the Union Tank Car companies. **E. G. Vail** continues as plant manager at Sand Springs, and **C. P. MacDonald** is the new manager of sales. At the same time, Union Tank sold the Salt Lake City oil equipment assets of Graver Tank to Symington Wayne Corp. The Salt Lake City activities are unrelated to those at Sand Springs, since they are concentrated in supplying other than oilfield petroleum equipment.

M. W. (Tiny) CHAMBLESS becomes area sales and service manager of the Southwest Texas area of McCullough Tool Co.'s eastern division, with offices in Houston. He succeeds the late **Tom Parsons.** Chambless, who joined McCullough in 1944, has been district sales and service manager at McAllen, Tex., for the past ten years.

M. W. Chambless

L. B. Rainey

L. B. RAINEY, assistant manager of sales, projects, at Tulsa for Jones & Laughlin Supply Division, moves to Houston in the same capacity. Rainey's transfer is a part of J&L's program to place more management personnel in centers of buying influence, such as Houston. Rainey, who joined Jones & Laughlin Steel Corp. in 1936, was promoted to salesman at its corporate office in Pittsburgh in 1938. He also held several positions in J&L's tubular products department in Pittsburgh, before he was named assistant manager of sales, projects, for the Supply Division.

CHARLIE TRAWEEK and **JACK NEFF** are new field representatives for American Iron & Machine Works Co. Traweek is assigned to the South Louisiana district, with offices in Houma, and Neff is located in Farmington, N.M.

D. E. ROTH has been named sales engineer at Lubbock, Tex., and **T. E. LOVAN** sales engineer for the Northeast division at Evansville, Ind., for Schlumberger Well Surveying Corp. Roth was formerly field engineer general at Lubbock, and Lovan was field engineer general at Evansville.

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P. L. Henderson

PAUL L. HENDERSON becomes vice-president of international production, and **GLENN F. BISH** vice-president of domestic production, for Ohio Oil Co., Findlay, Ohio. Henderson, with the company since 1929, was elected vice-president of production and a director in 1955. Bish was named a vice-president, a director, and manager of domestic production last year. Ohio Oil has overseas production in Canada, Venezuela, and Libya, and is exploring for new reserves in Guatemala, Somalia, Tunisia, and Australia. It has production in every major oil region in the United States, and in Alaska, and is presently involved in the development of new fields in southern Michigan.

DR. FRANK W. JESSEN, University of Texas specialist in oil drilling and production technology, will serve as head of the University of Bahia's drilling and production engineering school at Salvador, Brazil, for two years beginning Mar. 1. The school is jointly operated by the University and Petrobas, Brazil's government controlled petroleum industry. Jessen, with the University of Texas for 13 years, has also been an oil company engineer and independent consultant. In 1944, he worked with Petroleos Mexicanos, Mexico's government controlled oil industry, as a field consultant, and organized its production research laboratory in Mexico City.

TOM LINDHOLM, geologist-geophysicist, has joined Photogravity Co., Houston, as executive vice-president. He was formerly in charge of The California Co.'s gravity and magnetics department, in Denver. Photogravity is a new exploration company specializing in a program which coordinates photogeology and gravity work.

JAY M. GOREY, Esso Research & Engineering Co., Linden, N. J., has been elected vice-president of the American Assn. of Cost Engineers. **Earl K. Clark,** Dow Chemical Co., Freeport, Tex., and **William E. Hand,** Shell Development Co., Emeryville, Calif., are two new AACE directors. AACE's "primary objective is the advancement of the science and art of cost accounting, defined as the application of scientific principles and techniques to problems of cost estimation, cost control, and profitability."

C. F. BOWDEN moves up to assistant to the vice-president in charge of production for Union Oil Co. of California, and **A. F. WOODWARD** to manager of field and exploration operations for its Pacific Coast division. Bowden was formerly chief petroleum engineer for the Pacific Coast division, and Woodward has been chief exploitation engineer for that division since 1957.

RAY C. SMITH becomes vice-president and a director of Sinclair Petrochemicals, Inc., New York. He will continue as manager of domestic sales, a position he has held since 1956. He joined the Sinclair organization in 1947 as a technologist with Sinclair Research Laboratories, Inc. In 1952 he was appointed manager of market development for Sinclair Petrochemicals.

R. C. Smith

W. T. Askew

WILBURN T. ASKEW has been elected vice-president in charge of refineries for Sun Oil Co., Philadelphia. Askew, who was most recently head of Sun Oil Co., Ltd., a Canadian subsidiary, has also been elected a director of the parent company to fill out the unexpired term of **Frank R. Markley.** Markley, now vice-president in charge of transportation, plans to retire in April. Askew, who will direct operations at the Marcus Hook (Pa.) and Toledo (Ohio) refineries, will supervise the supply and distribution division of the manufacturing department. He will also act as liaison officer between the parent company and its Canadian subsidiary. **Clarence H. Thayer** continues as vice-president in charge of manufacturing; Askew will report to him concerning refinery and supply and distribution operations. Thayer is also in charge of the research and engineering department.

CHARLES A. FLOTO is the new president of Benedum-Trees Oil Co., Pittsburgh. He succeeds **Michael L. Benedum,** founder of the 60-year-old company, who died last July. Floto, with the company since 1915, was most recently executive vice-president.

LLOYD R. AUSTIN joins American Oil Co., New York, as assistant general manager, operations and administration, in the marketing department. He was formerly manager, administration, of the northern region, in Milwaukee, for Amoco's parent, Standard Oil Co. (Ind.). In

his new position, Austin will be responsible for bulk plant operating procedures, marketing engineering, real estate, procedures and organization, and marketing economics.

EDWIN E. ANDREWS, JR., has been appointed operations manager of the marketing department for the Esso Standard Division of Humble Oil & Refining Co., in New York. He succeeds **Alex A. Diffey,** who was recently promoted to assistant general manager of marketing. **A. C. Bedford, Jr.,** succeeds Andrews as Esso's assistant division manager for Delaware, Maryland, and the District of Columbia. After 13 years in various marketing positions in the New York sales division, Bedford moved to the public relations department in New York last August as assistant manager.

E. E. Andrews, Jr. I. E. Chapman

IRVING E. CHAPMAN is the new assistant general manager of Tidewater Oil Co.'s 14-state eastern division, with offices in New York. Chapman, formerly executive assistant to Tidewater's president, joined the company in 1929 as superintendent of the Sacramento (Calif.) marketing department. During his 30 years with the company, he has handled marketing and administrative assignments on both the western division and home office levels. From 1954 to 1955, he served as vice-president of Mitsubishi Oil Co., a Tidewater subsidiary in Japan.

JAMES C. ELEY is manager of exploration, and **BOB C. CRITTENDON** is manager of production, for Bill Roden, independent operator of Midland and Odessa, Tex. Eley was formerly geophysicist for the West Texas district of Mobil Oil Co., and Crittendon was a senior petroleum engineer for Mobil at Midland. **John T. Klingler** has joined Roden as drilling superintendent. For the past six years he has been assistant drilling superintendent for Rowan Drilling Corp. and Rowan Oil Co., in Midland. **Bernard Bevis,** Roden's new geologist-engineer, was formerly associated with Tennessee Oil & Gas Co., in Midland, and **Woodrow W. Dowling,** who is serving as office manager for Roden in Midland, was office manager for Charles E. Long, Jr., Inc., in Midland. Roden and **Thomas I. Sheridan, Jr.,** New York, have developed leases in Nolan, Upton, Kent, Borden, Andrews, and Hockley Counties in West Texas, and in Roosevelt County, N. M.

J. J. TANNER, D. M. TRAVES, and **H. I. HARRIS** are new officers of Qupex, the Queensland Petroleum Exploration Group, recently formed to promote exchange of information and to foster exploration in the Great Artesian Basin of Queensland, Australia. Tanner, Phillips Petroleum Co., is chairman, Traves, Mines Administration, vice-chairman, and Harris, Magellan Petroleum Corp., secretary-treasurer. Companies engaged in the search for oil in Queensland include Phillips, Union Oil of California, Plymouth Oil, Magellan, Conorada Petroleum, Kern County Land Co., Sunray Mid-Continent, and Stekoll Petroleum.

HARRY W. DUDLEY, petrochemicals manager of Delhi-Taylor Oil Corp., moves from New York to Dallas, as a part of the company's centralization of management program. Dudley's transfer is also a result of the company's expansion and diversification program to increase its line of petrochemicals to take advantage of diversified petroleum streams at its Corpus Christi refinery.

J. H. TORBERT becomes district manager of Skelly Oil Co.'s land and lease department at Calgary, succeeding **Roy J. Winchester,** who has resigned. Tobert formerly held the same position for Skelly at Tulsa.

A. M. McLACHLIN has been appointed production manager of Shell Oil Co. of Canada's Regina division. He succeeds **B. V. Barker,** who has been transferred to Calgary as special assistant to **J. W. Roche,** Shell's production manager. McLachlin has been Regina division production superintendent since 1958.

A. M. McLachlin Dr. Jones Parra, Jr.

DR. JUAN JONES PARRA, JR., has joined Mobil Oil Co. de Venezuela as assistant to the production manager, in Caracas. He was most recently director of Escuela Tecnica Industrial, also in Caracas. He has been associated with the Ministry of Mines & Hydrocarbons of the Venezuelan government, and was head of the petroleum department in the Venezuelan Petrochemical Institute.

TED WEINER, Ft. Worth, has been elected a director of Landa Oil Co., Dallas. He is managing partner of Texas Crude Oil Co. and president of Coral Drilling Co.

CORNELIUS DWYER, petroleum consultant, has been named to the recreated position of regional petroleum attache in Beirut for the U. S. State Dept. The post had been abolished in 1954. Dwyer, who has served in various government positions as a petroleum specialist, will be accredited to Arab oil producing states.

DR. W. C. HOWELLS, Texaco Canada Ltd., has been elected 1960 chairman of the Canadian Petroleum Assn.'s Alberta board of directors. He succeeds **J. B. Webb,** Alminex, Ltd. **A. F. Beck,** Canadian Export Gas & Oil, Ltd., was elected first vice-chairman, and **J. G. Spratt,** Triad Oil Co., was elected second vice-chairman.

ROBERT O. WILSON has been named manager of terminals, and **Mack E. Brown** assistant manager of terminals, for Kaneb Pipe Line Co., El Dorado, Kan. Both men will shortly be located at the company's offices in Yankton, S. D. Three new superintendents of terminals for the company are: **Charles E. Elznic,** Fairmont, Neb.; **Robert M. Biles,** Norfolk, Neb.; and **Burton J. Shannon,** Yankton. **Avery F. Oakes** has been named chief station engineer at Phillipsburg, Kan.

ROBERT L. WHITING, head of the petroleum engineering department of Texas A&M College, College Station, has been named acting director of the Texas Petroleum Research Committee. He succeeds **Dr. George Fancher,** who is now vice-president of Sinclair Research Laboratories, Inc. Whiting, an A&M faculty member since 1946, became head of the petroleum engineering department in 1954.

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Industry CAN Prevent Oversupply

THE INDUSTRY HAS THE CHOICE of creating a far worse oversupply condition than now exists or taking immediate action to correct the mounting surplus.

The decision will influence the industry's position for the remainder of the year. It could determine the difference between profit and loss for many companies.

So far, unfortunately, the consensus appears to be that the decision will be made for continued oversupply—a condition that has plagued the industry for most of the postwar years.

Positive action now toward a course of proper management of its supply and demand balance could turn the industry in the other direction.

But here is what is happening:

- Purchasers of crude generally are maintaining their requests to buy at relatively high levels, with little or no allowance for the seasonal pattern of declining demand between January and June—or for the usual refinery turnarounds in the spring.
- Importers of crude and products are appealing for higher allocations to protect their "historical" or "competitive" positions, without regard to what additional new supplies on the already crowded market would do to the industry's economic well-being.
- The Bureau of Mines continues to make its monthly forecasts of market demand for crude showing only small downward changes, which are not sufficient to cope with the historical pattern of seasonal decline in demand.
- Regulatory officials in some states appear to be oblivious to the fact that surplus oil on the market is wasteful—economically and physically.

THE SEASONAL PATTERN OF DEMAND is relatively inelastic. It hasn't deviated very much in recent years. The peak is reached in December or January. And in ten of the past dozen years the low point came in May. In the past three years, the difference between total demand in January and May has averaged 2.5-million b/d. In the 12-year period, March demand never exceeded January, and only once did February demand top January.

The proved trend is that after January the total new supply must be reduced in the immediate succeeding months as demand declines.

But in February, for example, new supply is running about 300,000 b/d over January—and the January supply was too high.

THE DECISION IS UP TO THE INDUSTRY. It has the final say on how much domestic and foreign crude it is to buy. State allowables and government allocations aren't mandatory purchase orders.

What is the industry's decision?

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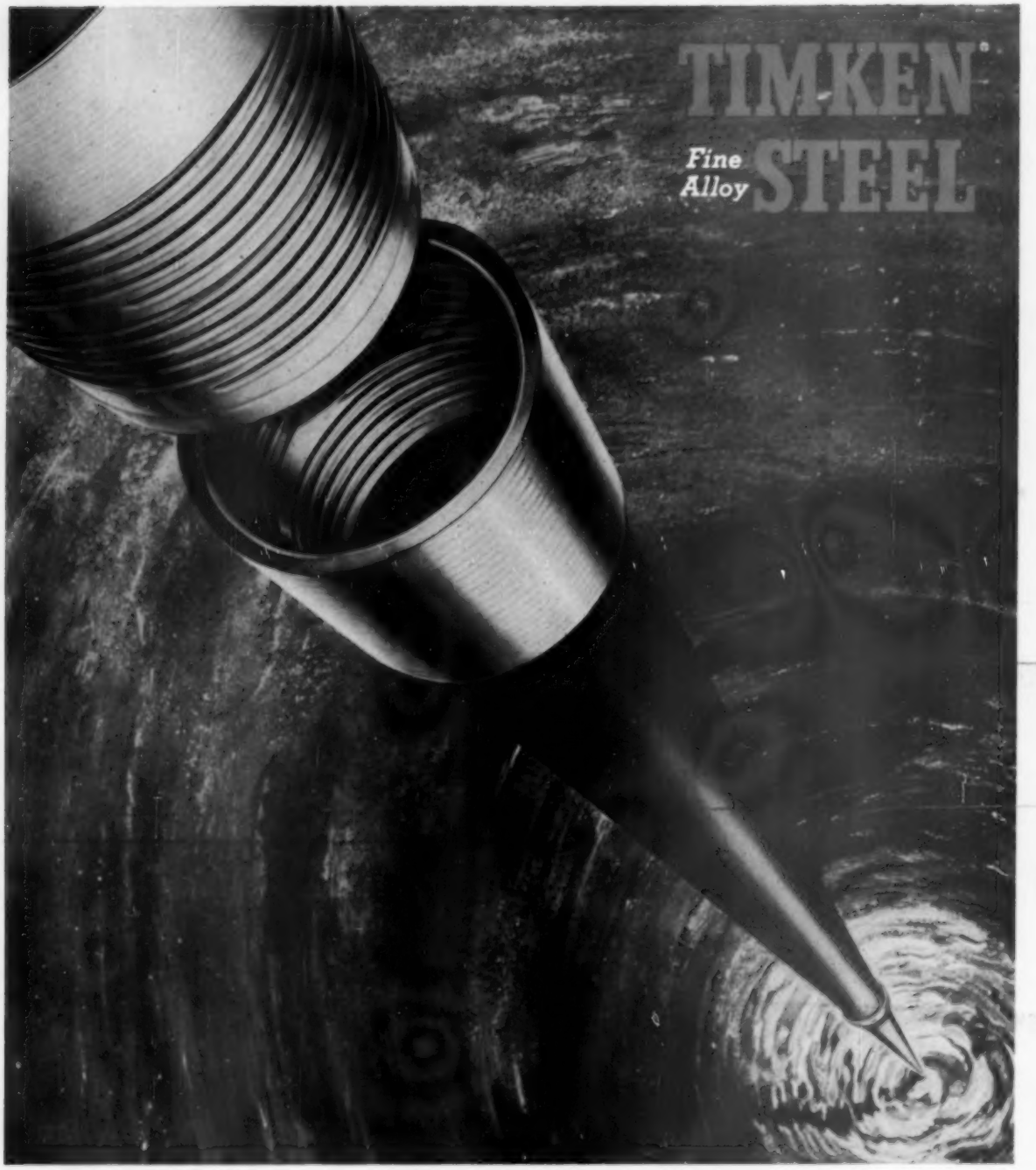

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